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A PLEA FOR EFFICIENCY AND ECONOMY IN THE MAINTENANCE AND OPERATION OF PRIVATE AGENCIES WORKING FOR THE CONSERVATION AND PROMOTION OF PUBLIC HEALTH.

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Presidential Address, American Public Health Association, Jacksonville, Fla., November 30, 1914.

The constitution of the American Public Health Association requires that the president give at the annual convention an address on some subject related to public hygiene. Fortunately, these subjects are so numerous that a speaker can have no difficulty in finding something to discuss within the prescribed limits. The difficulty begins only when he starts his search for that one subject best suited for presentation on the particular occasion before him. Here lie the fields of bacteriology, from which he may choose. Here, the fields of physiology tempt him with problems for presentation to his audience. Here are the problems of chemistry; here, of engineering; here, of vital statistics; and sociology offers its living issues, never before so acute and pressing as today. By all these fields I have resolutely passed, leaving them for consideration in the meetings of the general Association and of the several sections by those who are better able to discuss them and who, I hope, may be able to resolve their knowledge into reliable guides for human conduct. My theme is a simpler and more homely one than the problems of science by which I have passed, but one upon which, in so far as the welfare and the duty of the Association are concerned, all else depends; for efficiency and economy in the discharge of the functions it has assumed constitute the only foundation upon which the Association can base any claim for public sympathy and support, and I purpose discussing in the time allotted me this evening some of the elements that determine the efficiency or inefficiency, the economy or extravagance, of

this and other organizations that as volunteers have entered upon the field of public health activity. An inquiry of this kind, however, to be of value, must be of more than merely historical interest. It must form the basis of constructive criticism. It must point out the way to greater and greater efficiency, and increasing economy, until the maximum of popular sympathy and support be obtained for all public health activities.

Public health is nothing more than the aggregate of the health of the individuals of which the public is made up, and the protection and promotion of the public health is merely the protection and promotion of the health of the individual. Up to a certain point each individual can protect himself, but beyond this he cannot go. Ignorance on his part, lack of the necessary money, and inability to control the conduct of those about him, all stand in the way and make assistance necessary. Clearly the rendering of such assistance is a function of the government; for the government imposes many restrictions upon the conduct of the individual that limit his ability to protect and promote his own health, however necessary they may be for other reasons. It claims in the way of taxes a certain part of his earnings. It may in time of peace require his services as a juror and as a peace officer, and in time of war it may demand even that he lay down his life in its defense. On the face of things it might seem that the machinery of the government having been organized and established with the authority, the power, and the duty of protecting and promoting the health of the people, private agencies have no proper function to perform with respect to the matter. We have not yet, however, arrived at that happy state in which the government does everything that logically and equitably it should do, and in no other field of human welfare is the inadequacy of the discharge of government functions so marked as in the field of public health. And in so far as the individual cannot help himself and the government will not help him, it is incumbent upon everyone interested in human welfare to do whatever may be possible to relieve the situation, and all the while to endeavor to persuade the government to do its duty with respect to the matter. Until the government does recognize its obligations and undertake to discharge them, organized private effort will be necessary.

Since there is no public health separate and distinct from the aggregate of the private health of the community, the organization that would better public health in any respect whatsoever must reach the individual and induce him to act; it may be to induce him to do some particular thing to protect his own health or to protect the health of his neighbors, or it may be to induce him to raise his voice to compel the government to give to the protection and promotion of the health of the people the same interest and support that it gives to merely material things. But whether it be one thing or the other, the problem is the same: How can the individual be

most effectively and economically reached and induced to act? And the obstacles in the way of the solution of this problem are identical. Ignorance, poverty, and prejudice on the part of the persons to be reached; lack of money and of workers on the part of the organizations engaged in the propaganda.

Ignorance, prejudice, lack of workers, and lack of money interfere as much with our activities against mental disease as with our campaign against the forces responsible for an undue infant mortality. The difficulty of bringing home to the individual the facts we know concerning personal hygiene stands as much in the way of the prevention of tuberculosis as in the way of the prevention of social diseases. The problem of inducing the public to protect its water supplies is the same as the problem of interesting the public in an active way in school hygiene. And that the facts to be taught and the action that the individual is to be persuaded to take differ in some respects according to the disease to be prevented does not materially alter the problem. "Do not spit in public places" is as good advice for the prevention of diphtheria as for the prevention of tuberculosis. Tuberculosis has no patent upon the need of life in the open air, for such life as undoubtedly conduces to the prevention of pneumonia as to the prevention of the white plague itself. And prevention of infant mortality is not an effort to prevent any one disease or class of diseases but aims to limit all conditions inimical to infant life, and these are to a very large measure the very same conditions that are inimical to all life. Every private agency engaged in public health is, therefore, confronted by substantially the same problem, and each has an equal interest in finding out how it may be most efficiently and economically solved. Manifestly, then, these organizations should at the very least join in an effort to standardize their methods of work, so that each may have the benefit of the knowledge and experience of all others; and in so far as such knowledge and experience indicate that there should be coördination or consolidation of the work of such organization, such coördination or consolidation should be effected.

The American Public Health Association, the oldest of these organizations, was organized in 1872, for the advancement not of any one branch of sanitary science but of sanitary science generally. For more than thirty years it alone held the field of private activity in the field of public health work, thriving sometimes more vigorously and sometimes less, as popular interest varied one way or the other. But about 1904, with the diffusion of the knowledge that tuberculosis was preventable, there appeared a new idea about which public opinion and popular action in relation to public health might develop. Had the American Public Health Association been an active factor in molding public opinion at that time, it would undoubtedly have been the agency through which the resources of the country would have been organized for the suppression of the disease named; but the

Association was apparently lacking in vitality when the need for action arose. Its membership was small. Money was scarce. The Association had no organ through which it might communicate with the people and make its influence felt. The result was that the movement for the suppression of tuberculosis rallied about a standard outside of the Association, and in 1904 the National Association for the Study and Prevention of Tuberculosis was formed. The time was ripe for such a movement, and there was no difficulty in enlisting under the banner of the double cross many who were interested; some because of personal experience with tuberculosis, and some because of interest in the health movement generally.

The movement thus inaugurated for the establishment of volunteer bodies, independent of the American Public Health Association and not correlated with it, for work in special fields of endeavor looking toward the conservation and promotion of the public health, was carried further along in 1907, when the American School Hygiene Association was formed, and again in 1910, when the American Association for the Study and Prevention of Infant Mortality came into existence. Other organizations have since sprung up, but it is impossible here to go at length into the circumstances that lead to their formation. That some of these organizations have served useful purposes, no one will deny; and if the question were merely, is the public health protected by this array of private agencies, the answer would undoubtedly be that it has contributed materially toward that end and is still doing so. But the question is something more, for we must consider not only whether these private agencies afford protection to the public health, but also whether they afford the maximum protection that their resources, contributed by the public, entitle the public to expect. But if our study of the situation is to be constructive, as we agreed at the outset it should be, we must consider first what possibilities, other than the existing system of independent units, are open for the organization of our volunteer public health agencies; and we find, first, the possibility of a mere coördination of such agencies, and, second, the possibility of a single health organization to cover all fields of public health activity.

That coördination of the work of our public health agencies would be productive of results better than are now attained seems certain. There would be less overlapping of effort and of appeals for funds, and each organization would profit by the experience of all others. But there would still be the same multiplicity of officers and employees, engaged in the same kinds of administrative work; possibly the same number of more or less expensive offices; the same division of resources; and the same weakening of strength and authority in the appeals to the public for support and for action. Only as a step toward consolidation does any effort to coördinate the work of special organizations seem worth while, unless there is some insuperable obstacle in the way of consolidation. Whether there is any

such obstacle must appear when we consider, as we shall now proceed to do, the advantages and the disadvantages of a single organization as compared with those incident to the present multiplicity of agencies, each operating in a special field of endeavor.

The organization and work of any volunteer private agency, whether general or special in its scope, engaged in work looking toward the conservation and promotion of public health, involves several distinct activities: First, appeals for money and volunteer service. Second, the organization, supervision, and control of the working forces of the association, whether paid or volunteer. Third, the rendering of service to the public, for which the association or society exists.

The argument most frequently advanced in favor of the maintenance of a considerable number of special societies is that certain individuals can be reached by appeals on behalf of one form of public health work who have no interest in any other, and that special societies can best reach such individuals. The father who has lost a son from tuberculosis will respond more readily to an appeal for money for the prevention of tuberculosis than to any other. The wife who has seen her husband sink from a position of social and intellectual eminence until his only refuge and safety lay within the walls of an asylum for the insane will contribute more readily to a fund for the prevention of mental disease than to a fund for the saving of babies. The mother whose baby died in infancy will be most strongly appealed to on behalf of infant welfare. That the premise is true cannot be denied, but it cannot be conceded that the conclusion follows. A single public health organization made up for the prosecution of public health work generally can make appeals for funds and services wherewith to carry on its activities in any particular field of service just as well as can the organization whose activity is limited to that field; and by any proper system of accounts, or by a system of trust funds if necessary, it can assure the donor that what is given for a particular purpose will be applied to no other.

Moreover, while the appeal of the special society must be based upon interest on the part of the prospective donor in some particular disease, the appeal of the general society can be based upon other interests that may be even stronger. The society having the broader scope can appeal to the people of a state for money and service wherewith to carry on a campaign, either general or special, within the confines of the state, and similar appeals can be made to the people of a county, or of a city or town; and local sympathy and pride may be relied upon to open the pocketbook. The general society can appeal for support to the members of any particular religious denomination, or of any fraternal order, or of any labor organization, and so on, with full confidence that the bonds of fraternal sympathy will lead to substantial response. Or combinations of local pride with fraternal interest, even combined with an appeal to interest in the pre-

vention of some particular disease, can be made by the general society. And in this way the confusion arising out of many appeals, from many sources, for many purposes, may be avoided.

Another advantage of appeals based upon something more then mere interest in some one malady lies in the ease with which the interested group can be reached. To find the persons in any community, large or small, who are interested in the prevention of one disease rather than another and who can be reached only through an appeal to that special interest, we must scour the entire community. And in the end, except in so far as relates to the interested persons actually found and appealed to, the entire search goes for nothing. A society existing for the prevention of blindness alone may discover some one vitally interested in the prevention of cancer and appeal to him in vain; but so long as the society for the prevention of cancer is not put into touch with the person thus unsuccessfully appealed to, the labor that located that particular person and uncovered his particular interest has been lost. Were such an appeal made by a general society interested in the prevention of cancer as well as in the prevention of blindness, money available for the prevention of cancer might be readily forthcoming, even though the original appeal had been for money for the support of a campaign against blindness. What is true with respect to these two conditions is true also with respect to others; these have been cited merely for purpose of illustration.

Coming now to another feature of the work of private agencies engaged in public health work, with respect to which comparison must be made of the relative advantages of one general organization as compared with many special societies, we have the matter of administration. One of the most serious obstacles to the success of the special society lies in the very matter of administration and administrative expenses. The work of the central office absorbs so much of the money and energy of the organization that field work is practically impossible. Overhead charges are out of all proportion to the work accomplished and even to the work undertaken. Until means are found whereby the income of these small organizations can be very largely increased, or else some method devised whereby the proportion of the entire income spent for office expenses largely reduced, this condition must continue and effective field work will be impossible. How slight the chances are of any considerable increase in the incomes of these special societies is a matter of common knowledge. Efforts toward that end have been unproductive of results up to the present time, and there is no reason to look for better success in the future. The only recourse seems to be the adoption of some method whereby the proportion of the income spent for office expenses will be reduced, and this seems impossible so long as the special society remains its present basis. Offices must be rented; secretaries and clerical assistants must be paid; and the cost of

stationery, conventions, and so on, continue; and practically nothing remains for field work.

Compare this condition with the condition that would exist if the work of all special societies were organized and supervised under the direction and control of a single central body. One office, one secretary, one group of office assistants, and one budget for all incidental expenses, might be relied upon to serve the entire organization, releasing for field work some of the secretaries and clerks now employed, whose travelling expenses might be paid from the money then no longer needed for the rent of a multiplicity of offices; or branch offices might be established, if desired, without increasing the present budget. One health journal for the entire membership of the combined organizations would have a circulation in excess of any likely to be obtained by the official organ of any special society, and the economy of production and the increased income from advertising that come with an increasing circulation would permit the employment of an editorial staff to devote itself entirely to the service of the journal, with possibly the publication of a health journal along popular lines. With better organization of the central office that larger resources would permit, with a capable field corps to maintain a propaganda for health throughout the county, and with an aggressive official journal, supplemented it may be with a popular health magazine, the future of any organization would be secure.

It has been argued that general society would not be able to enlist the sympathy and support of specialists working in restricted fields related to public health work and to organize then into effective working forces so well as can the special society. Were the general society precluded from organizing its forces along technical lines, there would be some force in this argument; but such is not the case. There is, for instance, probably no medical society of any size that has not divided its work into special fields of medical practice, for the convenience and better service of its members; and any general public health organization might well do likewise. This very Association has already set the lead in that direction and has provided sections for the special study of particular phases of public health work; and there is no reason why, if such an association were large enough, sections should not be created to any desirable extent, sections on the prevention of tuberculosis, on school hygiene, on the prevention of cancer, and so on. The very size of the larger organization, with the corresponding increase in its resources that would come with increased size, would tend to draw the sympathy and support of all scientific workers in the field of public health. It would permit the better separation of the purely administrative work of the organization from the scientific and practical work and relieve the scientific staff of the drudgery of routine administrative matters, which is almost universally distasteful to scientific workers and

which can be done so much better by persons who are trained for it and who find a pleasure in the organization and discharge of administrative details. And the gathering together into one organization of experts interested in many lines of public activity would tend to broaden its views. Experts in one line would exert a corrective influence over those engaged in others. Saner and more efficient action would be assured. Faddism could not influence the association as a whole. And the association or society thus made up could speak to the public with greater authority than can any special organization.

When it comes to the actual effort of any special society to reach the community with its propaganda, what has been said with respect to the obstacles in the way of special societies in the matter of collecting funds and obtaining the support of persons specially interested in their particular fields of endeavor applies with equal force. In order to accomplish their ends, each must get into touch with persons who are specially needing its particular service, and in order to do so it must scour the whole population. And as the discards of one society are never referred to any other organization, the result is a large number of agencies scouring the entire territory in a very ineffective way, instead of one effectively searching, with a proper sorting and arranging of the results. In the search for persons interested in tuberculosis persons are encountered who are not interested in tuberculosis but who are interested in mouth hygiene; but there is no clearing house through which such persons can be put into touch with the society for mouth hygiene. Or if the society for the prevention of cancer, in its search for persons interested in the particular problems of that organization, find some one whose interests lie rather with tuberculosis than cancer, the correlation of that person and the society for the prevention of tuberculosis cannot readily be made. Each organization must by a long and expensive search throughout the entire population find the material it can best work upon. This very method of finding recruits by the appeal for the support of some particular flag is of limited efficiency even when they are found, since too often those who respond to the call are persons who are already suffering from the disease and with respect to whom prevention must take a very personal one-sided aspect. A broader appeal would reach persons not yet diseased, but interested in the problems of maintaining good health generally; in the problem of preventing disease, not merely of preventing a disease.

From what has been said it seems clear that the consolidation of all of the organizations now active in public health work into one organization would result in such efficiency and economy in the execution of such work as is not possible under existing conditions. The only question remaining to be considered is, What are we going to do about it?

If I as an individual obtain money or service without an adequate con-

sideration, upon representations as to some particular purpose to which such money or service is to be put, I am under a moral obligation, and it may be a legal obligation, to apply such money or service to that end, in the most efficient and economical way that is open to me. Any misapplication of money or service, through intent or through negligence, is at least a breach of trust and may possibly be branded even as fraud. No matter what may in the past have been held to be true, today these same principles are universally held to apply to groups of individuals, whether they act as a voluntary association or as a corporation, with quite as much force as they apply to the individual. And the principles just stated, that today govern the operations of business men and business organizations generally, apply to the operations of the individual and the organization engaged in public health work, notwithstanding that the worker seeks no personal profit out of the duty he has assumed; for in the eyes of the law and in conscience the execution of public health work, even though voluntarily undertaken, is a business, and the money collected for its execution is a trust fund which every contributor has a right to demand be economically expended for the purpose for which given, and duly accounted for. Clearly, then, it is the duty of this Association to labor toward the end that the private agencies now engaged in the conservation and promotion of the public health be consolidated into one well-organized, efficient, and economical body.

When I say that these agencies must be consolidated into one well-organized, efficient, and economical body, I desire to be clearly understood as not meaning that they shall be necessarily and as a matter of course incorporated into the American Public Health Association. The American Public Health Association must enter upon the consideration of plans for such movement upon the very same basis as every other agency engaged in public health work. If a careful study of the situation convinces the majority of those interested that a new organization should be created to take the place of all now in the field, this Association must for the good of the cause cheerfully acquiesce and loyally abide by whatever plan may be adopted. If, however, such a study shows that the American Public Health Association, which is historically the nucleus about which this consolidation should center, is logically the body into which all should merge, this Association must look forward to such merger on terms that will allow fair part to every organization involved in it.

As a concrete step toward the consolidation of the private agencies now engaged in public health work, and as a step that will in any event contribute very largely toward the future success of this Association, wherever its future may lie, I strongly urge that provision be made before this convention adjourns for the revision of our constitution. The constitution as it stands at present is an incumbrance and not an asset. It hampers the

activity of the organization. It removes from careful and mature deliberation even such an important matter as the determination of the place of meeting. The by-laws, which normally should be flexible, so as to serve the purposes of the organization, are so rigid as to make the Association merely the agent even of the by-laws. I cannot, therefore, too strongly urge action at once with respect to this matter.

In making such suggestions and recommendations as I have made, I have done so with very definite knowledge that they will be considered by a group of officers and by a membership devotedly loyal to the cause of public health and to the Association, that if they are unwise they will be carefully and discreetly laid aside, and that if they contain even a germ of merit it will be sought out and properly acted upon. I speak with knowledge upon this matter, for it has been only the loyalty and interest of the other officers and of the entire membership that has made it possible for the Association to forge ahead, as it has done during the past year, marking it as the most successful year in the history of the Association in so far as my knowledge goes; and for such loyalty and interest, I desire here to record my grateful appreciation.

THE RELATION OF THE CITY TO THE MILK SUPPLY.

NATHAN STRAUS,
New York City.

Read before the General Sessions, American Public Health Association, Jacksonville, Fla., December 4, 1914.

The protection of the health of the people of a city is an accepted obligation of the modern municipality. It is a function quite as inseparable from municipal government as the policing of the city, the maintenance of streets, protection from fire and the schooling of the children.

In the course of the development of the functions of municipal government the water supplies, provided by private enterprise, came under municipal supervision because public policy demanded safeguards against the spread of typhoid fever through infected water.

Mere supervision proved in many cases insufficient. It was found to be a post mortem protection. Typhoid came first; then measures to purify the water supplies.

Necessarily, therefore, the cities took the water supplies under their absolute ownership and control. Now waterworks are built and operated as a matter of course by municipal governments, and no one would for a moment tolerate the proposition that the supplying of water for domestic uses be turned back into the control of private corporations.

Under municipal control the water supplies have generally ceased to be sources of typhoid fever. One of the three great causes of that disease has been absolutely eliminated in most cities by having city-owned, city-purified and city-distributed water supplies.

Infected milk supplies and contact with cases of typhoid remain as the unconquered sources of the infection.

The duty of the municipality to prevent disease has been well exemplified in the improvement of the water supplies under municipal ownership. The policy, long bitterly assailed, has been vindicated.

But the duty of the municipality does not end with the supplying of pure, germ-free water. It is equally important that the people have pure, germ-free milk. I am conservative in saying that this is equally important. Milk is a universal necessity in only a slightly less degree than water. Milk, even more than water, is a carrier of the germs of disease—not of *one* disease, but of *six*, not counting the foot and mouth disease.

Water has often been responsible for outbreaks of typhoid fever.

Milk, in the raw state, is more often the cause of typhoid. Milk not infrequently carries the germs of diphtheria, scarlet fever, septic sore throat and the summer complaints of children.

And, more serious than all else that may be said of raw milk,

Milk is a common vehicle for the transmission of tuberculosis to human beings.

Addressing the American Public Health Association it is not necessary to cite evidence as to any of these facts; nor is it necessary to call to witness my twenty-three years' experience in preventing these diseases in New York City and elsewhere on two continents by supplying babies with pasteurized milk; nor is it necessary to cite the position of this Association as to the necessity for pasteurization, or the decision of the National Commission on Milk Standards, or the advice of the American Medical Association.

We have the fact that municipal government intervened and took control of the water supplies chiefly to stop the ravaging of their cities by *one* disease, typhoid fever.

My proposition is that the same policy should be followed in dealing with an article of food of universal use and necessity that is a common cause of *six* plagues.

Practically every city does undertake to see to it that the milk sold to its people is of good quality, many municipalities do endeavor to secure for their people milk that is pure and free from the germs of disease.

The obligation to do this is recognized by every municipality; the extent to which the obligation is carried out varies.

The method everywhere is supervision—the method that was tried and proved insufficient in the protection of the people from typhoid germs in water.

The plenary power of a municipal government to control the supplies of milk, wherever they come from, has been recognized and upheld in decisions of the Supreme Court of the United States.

The duty of the municipality in respect to the milk supplies is no longer disputed. The only room for discussion is as to how this duty is to be fulfilled.

By ordinances that are not enforced?

By inspection that does not inspect?

By post mortem supervision that deals with a dairyman or dealer after the raw milk has started an epidemic?

At a vast expenditure of effort a great improvement has been achieved in the milk supplies of cities. No one knows this better than I do for I have followed this work day in and day out through twenty-three long years. I am thankful for what has been done. But yet it remains true that most of the milk sold in the cities is neither pure nor safe.

The consequence is that milk-borne diseases continue to exact their toll of human lives, particularly of infant lives.

How then shall the municipal governments meet their obligation to secure to their people milk that is pure and free from germs?

I would be the last to discount or to criticise the action taken by New York City and Philadelphia, and contemplated or partially carried out in many other cities, in requiring the proper pasteurization of the milk supplies under municipal supervision.

This is the greatest step forward in the history of the modern war for the prevention of disease. It will save lives not by hundreds but by thousands. It means more than the adoption of compulsory vaccination, for that wrought the annihilation of smallpox, which was only one plague, but pasteurization spells the stamping out of six plagues.

I therefore want to commend in the strongest possible terms the measures taken for the pasteurization of the milk supplies in the cities named, and I want to urge with all my power the adoption of this program by every city as necessary to the fulfillment of its duty to protect the health of its people.

But I would be less than frank if I did not admit that I look forward to a system more efficient than pasteurization under municipal supervision.

Such supervision is of necessity occasional and lacking in complete efficiency. Its history, I believe, will parallel that of municipal supervision of the purification of privately operated water supplies. It will do much good, but finally will give way, I believe, to a system that will do more good.

Absolute municipal control of the milk supplies will, I believe, be found to be the effective way not merely to check, but to wipe out the milk-borne diseases.

This thorough control may be achieved in two ways:

By the cities taking over the function of supplying milk to consumers just as the cities have taken over the function of supplying water to each household, or,

By the cities performing the function of pasteurizing the entire milk supply and delivering the milk in sealed containers to the dealers for distribution.

Neither system means increased cost of milk, for the first wipes out the high cost of competition, with the duplication of milk routes by rival dealers, while both systems give the benefits of the economies of a few large central plants as compared with a large number of smaller plants.

As a rule the milk supplies of the smaller dealers pass through a bottling plant, which filters and bottles the milk at a charge of one cent a quart. Where pasteurization has been required such milk has been pasteurized without additional charge. Municipalities could filter, pasteurize and bottle for less than a cent a quart and thus help the small distributors.

Both systems mean fairer prices to the farmers and no higher price to the consumers.

But the protection of human life is not to be measured by its cost, but rather by the amount of sickness prevented and the number of human lives saved.

This country is awakening to the excessive cost of the Great White Plague—a cost figured in millions of dollars and of lives and in suffering and sorrow that is incalculable.

With this awakening there will come, I believe, a demand similar to that that led the municipalities to take over the function of supplying water, and as the people realize the bearing of milk upon the spread of six plagues, of which the greatest is tuberculosis, I feel sure that there will come irresistible insistence upon the absolute assurance of safety from these infections that can be had only in the municipalization of the milk supplies.

I think the time has come to recognize these facts frankly—the time to insist urgently upon pasteurization and to consider and work out the problem of making this protection thoroughly efficient by municipal pasteurization.

In addressing the Presidents of Health Boards of American and Canadian cities on March 22, 1897, I said:

"The tragedy of needless infant slaughter by infected milk, desolating so many homes and wringing so many hearts, lies like a dark shadow on our boasted civilization. It is nothing more nor less than permitted murder, for which the responsibility must lie at the door of the agencies of government that fail to recognize its existence and demand its prevention. The necessity is too great to be adequately met by private effort. Nothing short of an organization as broad as the area of milk consumption will meet the case, and this only public authority can supply."

On November 15, 1900, I wrote:

"If the pasteurizing of the entire milk supply were made the function of the municipality, it would be an exceedingly clever business investment, for the money expended would be returned a hundredfold. This is looking at it from a practical, commercial standpoint, besides which, from a humanitarian point of view, the amount of suffering and disease which would be prevented is incalculable."

Since then the necessity for pasteurization has been recognized and declared by the United States Public Health Service and by the representative medical and health organizations of America, and the enforcement of pasteurization has become the settled policy of the health authorities of the greatest American cities.

I pray devoutly for the forwarding of this great work and I look forward to the time when pasteurization will be made thoroughly effective by the municipalization of the milk supplies.

That we must have pure water is recognized and we get it through municipal control; that we must have pure milk is now equally well recognized, and I believe we will get it through municipal pasteurization.

THE COMING MOVEMENT FOR EXTENDING HUMAN LIFE.

PROF. IRVING FISHER,
Yale University, Chairman of the Hygiene Reference Board of the Life Extension Institute.

Read before the General Sessions, American Public Health Association, Jacksonville, Fla., December 4, 1914.

There is no need to prove to the members of this Association that the extension of human life is a practicable undertaking; for most of our members are engaged in accomplishing this very task. By all who have come in contact with preventive sanitation and medicine the old idea of an iron law of mortality has been utterly abandoned. In its place, our boards of health are now proclaiming that health and long life are purchasable commodities.

But while we are already agreed that human life is extensible, we are not so fully agreed as to the best methods to be employed for extending it. In fact for several years a few students have been suspecting that the work of prolonging life as it is at present being conducted is not pursued in the most effective manner and that, in particular, we are neglecting one of the most, if not the very most, promising means of all—individual hygiene.

Our present methods have their roots, for the most part, in the work of Pasteur. Ever since Pasteur made his epoch-making discoveries and uttered his inspiring words, "It is within the power of man to rid himself of every parasitic disease," health workers have sought to secure their results almost wholly in the single direction which he indicated, *i. e.*, by attacking our infinitesimal parasitic enemies.

Far be it from me to disparage these efforts. On the contrary, we should, by all means, continue in them without interruption or relaxation. The success of Gorgas at Panama, to say nothing of that of numerous other public health officers, affords proof positive of the great and immediate returns which well-directed sanitary effort is certain to bring. These returns are strikingly shown by the great acceleration in the rate of life-lengthening which came on the advent of Pasteur and modern sanitation. In the report on National Vitality, of the Roosevelt Conservation Commission, a summary of European life tables shows that human life lengthened during the seventeenth and eighteenth centuries at the rate of only four years per century and that during the first three quarters of the nineteenth century it lengthened about twice as fast, but since that time it has been lengthening more than four times as fast or about seventeen years per century. These figures would seem large enough to satisfy the most

ambitions, and certainly if life could continue to lengthen at the rate of seventeen years a century, after a few more centuries the world would be populated mostly by Methuselahs.

But our prospects are not so bright. In fact there is a large element of gloom. When we analyze the nature of the present improvement, we find it due chiefly to a decreased loss of life from infection before middle age *in spite of an increased loss of life after middle age from degeneration*. Such a process bids fair soon to change our net gain in the average life span into a net loss. The truth is, we are witnessing a race between two tendencies, a reduction of the acute or infectious diseases, such as typhoid, and an increase in the chronic or degenerative diseases such as arteriosclerosis and Bright's disease. By the degenerative diseases is meant those which consist in the degeneration or wearing out of the vital organs. It may be difficult always to distinguish between infectious and degenerative diseases, but that there is a broad distinction cannot be doubted. Statistics, in all countries for which they exist, excepting only Sweden, England and Germany, show that the expectation of life after middle age is distinctly declining and that there is an ominous increase in the death-rate from the chief degenerative diseases.

Still more alarming for us in the United States is the fact that this degenerating tendency seems to be more in evidence here than elsewhere. The degenerative diseases in England are remaining stationary and the expectation of life after middle age is also stationary. In Sweden we find the expectation of life increasing at all ages. There, even the nonagenarians of today have more years to live than did those of former days. In the United States, however, the degenerative diseases are increasing rapidly. The Census reports show that the number of people now dying from diseases of the blood vessels is nearly four times as great as a decade ago. There is also, as Dr. Dublin has shown, some evidences, in spite of the improvement in mortality, of an actual increase in morbidity. Tredgold in England has given statistics secured from a number of friendly societies with a total membership of nearly one and one-half millions, which would seem to prove a very distinct increase of morbidity.

The great broad fact seems to be that while we are freer of germs than our ancestors, our vital organs wear out sooner. There may be some difference of opinion as to the cause of this more rapid wearing out. But, personally, I believe, it can be convincingly shown that the chief cause is the neglect of individual hygiene, partly from ignorance, partly from indifference, partly from sheer helplessness under modern industrial conditions. The degeneration of our bodies follows a degeneration of our habits. It is especially significant that, in England, where the degenerative diseases are not increasing, individual exercise, out-of-door sports for the masses, and self-care are, apparently, not declining, or not declining fast; and it is

still more significant that in Sweden, where there is improvement at all ages, the interest in individual hygiene is the greatest in the world. It is the only country where public health includes private habits and touches the life of the people, especially through the public schools.

Strong corroboration of these broad facts and inferences has been forthcoming in the last six months from the experiences of the Life Extension Institute. The Life Extension Institute aims to be a self-supporting philanthropy. It began its work a few months ago with ex-President Taft, Chairman of the Board of Directors; Mr. Rittenhouse, President; Colonel Gorgas, Consultant in Sanitation; Dr. Eugene L. Fisk, Director of Hygiene; and a Hygiene Reference Board consisting of many experts and a few lay enthusiasts like myself. Its chief work at present consists of medical examinations to discover possible physical impairments, carrying out a suggestion made some years ago by Dr. Burnside Foster to the Association of Life Insurance Presidents.* These medical examinations are made partly for Life Insurance Companies, like the Metropolitan among their policy holders; partly for industrial concerns among their employees; and partly for individuals. Not all of the figures so far accumulated have as yet been tabulated but some of the first results, not yet published, are here presented as worked out by Doctor Fisk, the Director of Hygiene. They constitute the first general physical survey of sample groups of our citizens and reveal conditions of impairment which are truly astounding. They include about 2,000 medical examinations of employees of the commercial houses and banks in New York City among young persons, mostly young men, with an average age of thirty.

Only 3.14 per cent. were found free of impairment or of habits of living which are obviously leading to impairment. Of the remaining persons 96.69 were unaware of impairment. 5.38 per cent. of the total number examined were affected with organic heart trouble, 13.10 per cent. with arteriosclerosis, 25.81 per cent. with high or low blood pressure, 35.63 per cent. had sugar, casts or albumin in the urine, 12.77 per cent. with combination of both heart and kidney disease, 22.22 per cent. with decayed teeth or infected gums; 16.03 per cent. with faulty vision uncorrected. These figures are especially surprising because of the large number of young men and young women suffering from diseases of the heart, kidney and circulatory system. The fact of greatest import, however, was that impairment sufficiently serious to justify the examiner in referring the examinee to his family physician for medical treatment was found in 59 per cent. of the total number of cases. In other words, considerably over half of the young men and women in active work, and presumably selected for their work as especially "fit" were found, although unaware of the fact

*This suggestion we now find was made by many others; the earliest and most complete scheme for medical re-examinations was made twenty-four years ago by Dr. George M. Gould, the well known oculist.

themselves, to be in need of medical attention, while 37.86 per cent. were on the road to impairment because of the use of "too much alcohol" or, "too much tobacco," constipation, eye-strain, overweight, diseased mouths, errors of diet, and so forth.

Whatever we may say as to the significance of these figures, we must at least conclude that young men and women today, even in their twenties, are unwittingly laying the foundation for heart disease, Bright's disease, and the other chronic, progressive, or degenerative ailments which sooner or later will cause their death. It would seem that today men and women begin to die almost as soon as they are grown up, but are dying so slowly that neither they nor their physicians suspect the process until death stares them in the face. What would we think if such a per cent. of impairments were found in a dairy herd or a flock of sheep!

On the principle that "a stitch in time saves nine," the early diagnosis and prompt treatment, in the incipient and easily curable stages, of the degenerative diseases should be the next great step forward in the fight for improving national vitality. Dr. Rankin, Health Officer of North Carolina, at a meeting last spring of the Hygiene Reference Board of the Life Extension Institute, declared that he thought the time would soon come when our health boards would need to "swing over," as he expressed it, their emphasis from sanitation to hygiene, and institute free medical examinations. The proposition is so simple that it is astonishing to think that we have waited so long before finding out the vast extent of the need. No factory owner would allow his machinery to go uninspected until it broke down. Yet that is precisely what we have done with the human machine. Worse still, we have scarcely studied, much less advocated, those simple rules of hygiene by which and by which alone the degenerative diseases must be prevented. We need to know more of what errors we may be committing according to the laws of physiology. Is our diet, for instance, too acid and too little alkaline? Do we take our food too concentrated? Are the common drugs we use in beer, cigarettes, tea and coffee, seriously harmful? These and numerous other questions are not yet settled in our minds because most physicians and health officers have not yet seriously concerned themselves with them. The old idea of the ancient Greeks, of cultivating a sound mind in a sound body by the exercise of simple personal hygiene through the proper use of air, food, rest, exercise, bathing and wholesome recreation, was utterly forgotten during the middle ages, when, in the quest for spirituality, the absurd doctrine was promulgated that the flesh is gross and in league with the devil. Mediæval artists associated saintliness with sickliness and chose consumptives for their models. Pasteur has only partly released us from mediævalism. We still need to add to our resources of hygiene what we had formerly subtracted from them when we abandoned the Greek ideals.

In our respect for the work of the laboratory we forget the obvious promptings of common sense. Rubner has in substance said that we are so intent on studying unexplored regions of bacteriology that we forget common physiology. The gains in human vitality which we can secure from applied physiology will, I believe, prove as surprising as those we are already securing from applied bacteriology. To this end we need to formulate scientifically what constitutes a wholesome life and to educate the public on what changes from existing customs are necessary to live that life. Furthermore, in the industrial world we must in some cases compel wholesome physical and mental conditions for our working people. The time has come when science must subdue custom and reason triumph over tradition.

TYPHOID FEVER AND ITS SEQUELÆ.

LOUIS I. DUBLIN, PH. D.,
Statistician, Metropolitan Life Insurance Company, New York, N. Y.

Read before the Section on Vital Statistics, American Public Health Association, Jacksonville, Fla., December 4, 1914.

Our problem in this study was to measure the effect of typhoid fever upon vitality during the first three years following recovery, and also to note the causes of death which predominate during this period.

RECORDS USED.

For this purpose, we turned to the reports of the Visiting Nurse Service of the Metropolitan Life Insurance Company for the year 1911. In that year, 1,936 cases of typhoid fever were recorded. A fairly complete record of the illness in these cases was available. A further advantage in this series was the fact that the subsequent whereabouts and condition of those who were treated could be obtained from the insurance records. In this way, we could at once be informed with regard to the present status of these persons; whether they were living or dead, the date of death, as well as a complete record of the conditions at death in these later cases. It was, in other words, possible for us to trace this series fairly completely and to determine the consequences and effects of typhoid fever on these persons.

An examination of our 1,936 cases led to the elimination of 362 in which the record did not appear satisfactory from the point of view of accuracy of diagnosis. As a result, we had, after careful analysis, a residue of 1,574 cases. All of these presented satisfactory evidence, so far as such records alone could, that the patient had suffered from an attack of "typhoid fever" at the time of 1911 nursing. The cases were in the hands of physicians and nurses. The treatment of the disease in every case indicated typhoid fever. The duration of the service as well as the large number of visits made, all pointed conclusively that our series was well selected and sound. The average number of visits made per case by our Visiting Nurse Service to these patients was close to seventeen (16.85) and the duration of nursing was close to twenty-four (23.87) days.

DISTRIBUTION BY AGE AND SEX.

Table 1 shows the distribution of the 1,574 cases by age and sex. It will be noted at once that 70.3 per cent. of the total cases were under twenty years of age and that 34.1 per cent. were under ten years. This proportion is somewhat higher than that usually observed in other typhoid fever series. The explanation lies in the fact that our Visiting Nurse Service is more readily availed of by women and children. It is important also to remember this large incidence at the earlier ages in view of its bearing on our findings later with reference to the sequelæ.

TABLE 1.

DISTRIBUTION BY AGE AND SEX OF 1,574 CASES OF TYPHOID FEVER.

VISITING NURSE SERVICE, 1911, METROPOLITAN LIFE INSURANCE COMPANY.

Age period.	Males and females.		Males.	Females.
	Number.	Per cent.		
Under 10	536	34.1	251	285
10–19	570	36.2	254	316
20–29	230	14.6	85	145
30–39	114	7.2	35	79
40–49	81	5.2	23	58
50 and over	43	2.7	17	26
Total—all ages	1,574	100.0	665	909
Per cent. of total—by sex		100.0	42.3	57.7

LETHAL RATES.

Table 2 presents the lethal rate per 100 treated for each period. The least rate is that for the children under ten; the highest trustworthy rate is for the group 20–29 which was 13.91 per 100. At the higher ages there are too few exposed to make the rate dependable. For the entire series of 1,574 cases treated, the lethal rate was 9.28 per 100 treated. This figure is consistent with that of other series which vary slightly above and below a mean of 10 deaths per 100 cases treated.

TABLE 2.

LETHAL RATES PER 100 CASES TREATED FOR TYPHOID FEVER—CLASSIFIED BY AGE PERIOD.

VISITING NURSE SERVICE, 1911, METROPOLITAN LIFE INSURANCE COMPANY.

Age period.	Number treated.	Number died under treatment.	Lethal rate per 100 treated.
Under 10	536	36	6.72
10–19	570	45	7.89
20–29	230	32	13.91
30–39	114	12	10.53
40–49	81	13	16.05
50 and over	43	8	18.60
Total—all ages	1,574	146	9.28

Complications.

Table 3 shows the complications in these 146 cases. These are important in view of our interest in the sequelæ to be referred to later. Interest should be centered in the fact that over 15 per cent. involve intestinal perforation, hemorrhage, peritonitis and other similar conditions. Meningitis and pneumonia were present in 10.3 per cent. of the fatal cases, heart conditions in 8.2 per cent. of the cases. Other complications, such as tuberculosis and acute nephritis indicated that the lungs and kidneys were impaired in a considerable number of cases in connection with the typhoid infection.

TABLE 3.

COMPLICATIONS IN 146 FATAL CASES OF TYPHOID FEVER.

Visiting Nurse Service, 1911, Metropolitan Life Insurance Company.

Complications with typhoid fever.	Number of deaths.	Per cent. of total deaths.
No complications stated	60	41.1
Intestinal perforation, hemorrhage	22	15.1
Meningitis	15	10.3
Pneumonia	15	10.3
Heart involvements	12	8.2
Tuberculosis (all forms)	8	5.5
Acute nephritis	4	2.7
Other complications	10	6.8
Total fatal cases	146	100.0

Distribution of Recovered Cases.

Table 4 shows the distribution by age and sex of the 1,428 persons who recovered from the typhoid fever. This distribution is very slightly different from that of Table 1 which showed the distribution of the initial cases.

Relation Actual to Expected Mortality.

From this point onward, our effort was directed to a comparison of the actual and expected mortality among the 1,428 survivors. Our method was as follows: The 1,428 cases were distributed by sex and color and by ten-year age periods. A separate schedule was prepared for each sex and color. The mortality rates of the Company for each individual age, sex and color class was employed as a standard. We assumed that the mor-

TABLE 4.

DISTRIBUTION BY AGE AND SEX OF 1,428 PERSONS WHO RECOVERED FROM TYPHOID FEVER.

VISITING NURSE SERVICE, 1911, METROPOLITAN LIFE INSURANCE COMPANY.

Age period.	Males and females.		Males.	Females.
	Number.	Per cent.		
Under 10	500	35.0	239	261
10–19	525	36.8	232	293
20–29	198	13.9	68	130
30–39	102	7.1	30	72
40–49	68	4.8	14	54
50 and over	35	2.5	9	26
Total—all ages	1,428	100.0	592	836
Per cent. of total—by sex		100.0	41.5	58.5

tality actually experienced in 1911 by the Company in the Industrial Department should serve as the measure of the expected deaths for the corresponding group of these persons who had recovered from typhoid fever in 1911 for the first year after recovery. For the second year after recovery, we employed similar mortality figures for the year 1912 as a standard and for the third year we employed the figures for 1913. In other words, the mortality table used was not an arbitrary measure but exhibited the death-rates which persons of the same sex, color and age among our Industrial policyholders actually experienced. By throwing these rates into the number of years of life of each group in successive years since recovery we obtained the number of expected deaths for each age period.

In this way we found, as shown in Table 5, that in the series of 1,428 persons the expected number of deaths was equal to 26.45. As a matter of fact, our record showed 54 actual deaths. The ratio of actual to expected deaths was, therefore, for our entire series, 204 per cent. In other words, more than twice the mortality expected was realized. You will note that the total number of years of life was nearly 3,850 years.

A number of persons dropped out, either by death or lapsing their policies during the first, second or third year after recovery. Each such exit from our series involved an adjustment in the number of years of life exposed to risk, by taking the proportionate part of a year from the date of recovery to the date of exit. In this way, every day of experience was used. Fortunately, the fullness of the Company's record made this much desired

TABLE 5.

COMPARISON OF ACTUAL AND EXPECTED MORTALITY IN THREE YEARS FOLLOWING RECOVERY FROM TYPHOID FEVER—CLASSIFIED BY AGE PERIOD.

CASES TREATED BY VISITING NURSE SERVICE, 1911, METROPOLITAN LIFE INSURANCE COMPANY.

Age period.	Number of years of life.	Number of expected deaths.	Number of actual deaths.	Per cent. actual of expected deaths.
Under 10	1,354.15	8.07	13	161
10–19	1,434.66	5.61	12	214
20–29	521.27	3.92	13	332
30–39	274.16	2.94	5	170
40–49	173.05	2.46	8	325
50 and over	92.62	3.45	3	87
Total—all ages	3,849.91	26.45	54	204

step possible. It would be difficult in many other services to keep such complete control of the whereabouts of the individuals composing a large series. Our conclusion from our own series is, therefore, that during the first three years after recovery from typhoid fever, the mortality is twice the normal.

It is interesting to note, however, that this increased rate is not uniformly evident in all the three years of the series. Thus, in the first year following recovery from typhoid fever the ratio of actual to expected deaths was 284, in other words nearly three times as great as it should be. In the second year, the percentage actual of expected deaths was 217, and in the third year it fell below the expected, namely to 80 actual deaths per 100 expected deaths. This last fact is puzzling. A careful reëxamination was made of our series. No effort was spared in finding a possible source of error and yet at the very end, we find no evidence of an additional death which would in any way change our figure.

It would appear from our figures that typhoid fever has its impairing effect in the first two years after recovery. It would seem, although we would not press this explanation, that the weaklings had been eliminated by the immediate deaths and those that followed in the first two years after recovery. Table 7 shows the causes of death in the 54 cases that occurred in the three years subsequent to recovery. Tuberculosis heads the list with twenty-one deaths (39 per cent.), of which all but three cases were of the pulmonary type. The second important group are the diseases of the heart with a total of eight cases. Pneumonia, and kidney disease follow with four cases each.

TABLE 6.

COMPARISON OF ACTUAL AND EXPECTED MORTALITY IN EACH OF THREE YEARS FOLLOWING RECOVERY FROM TYPHOID FEVER—CLASSIFIED BY AGE PERIOD.

CASES TREATED BY VISITING NURSE SERVICE, 1911, METROPOLITAN LIFE INSURANCE COMPANY.

Age period.	First year after recovery.			Second year after recovery.			Third year after recovery.		
	Number of		Per cent. actual of expected deaths.	Number of		Per cent. actual of expected deaths.	Number of		Per cent. actual of expected deaths.
	Expected deaths.	Actual deaths.		Expected deaths.	Actual deaths.		Expected deaths.	Actual deaths.	
Under 10	3.73	4	107.	2.54	5	236.	1.80	3	167
10–19	1.86	8	430.	1.91	4	209.	1.84	....	....
20–29	1.45	3	207.	1.31	7	534.	1.16	3	259
30–39	1.06	5	472.	1.00	....	....	.88	....	....
40–49	.88	7	795.	.82	1	122.	.76	....	....
50 and over	1.24	2	161.	1.16	1	86.	1.05	....	....
Total—all ages	10.22	29	284.	8.74	19	217.	7.49	6	80

Our conclusion, then, from this table is that the incidences of tuberculosis and the diseases of the heart are increased subsequent to typhoid fever. This is borne out by the previous statement of complications which occurred in the immediate deaths, Table 3, where a considerable number of cases showed heart and pulmonary complications. This condition has been noted consistently by other observers of typhoid fever and its sequelæ.

Effect of Sequelæ upon General Death Rate.

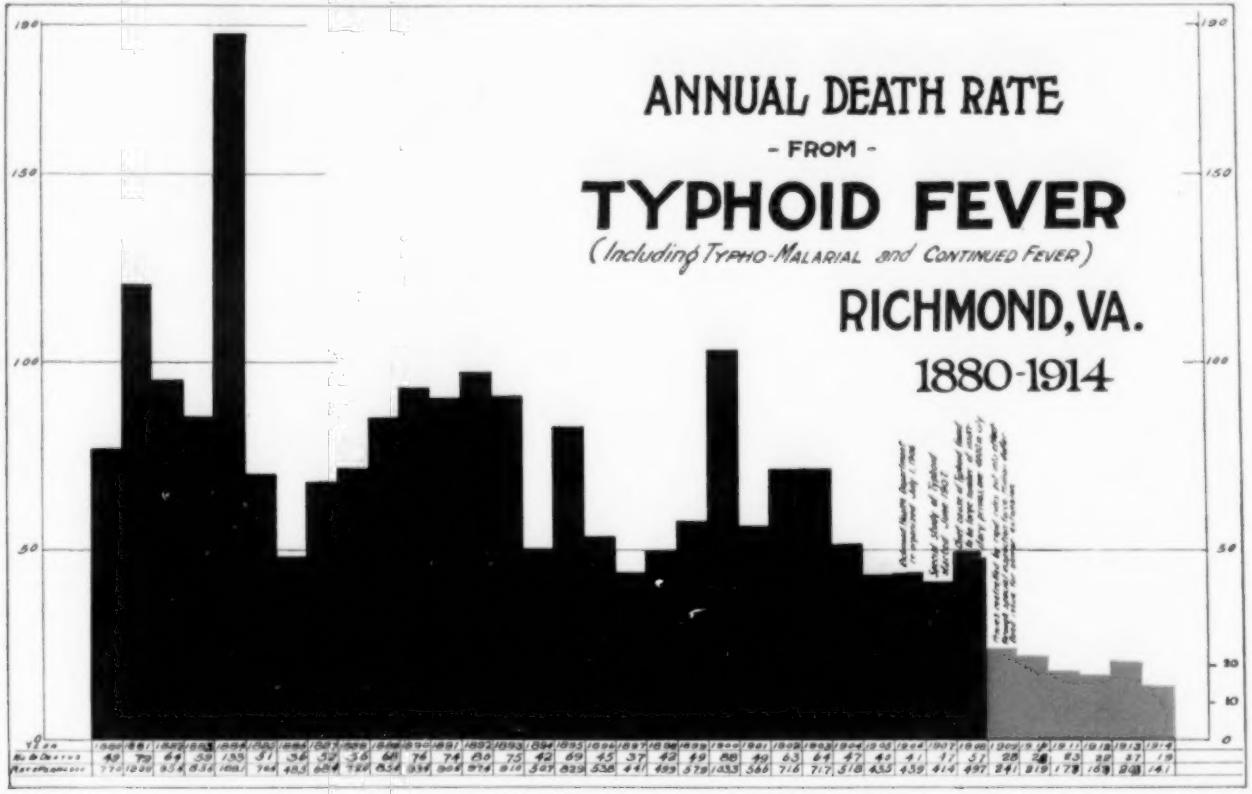
We will close this paper with an estimate of the effect of typhoid fever upon mortality in the three years subsequent to an attack. On the basis of the estimated population of Continental United States in 1914, we have calculated that each year a minimum of close to 8,000 deaths occur which can be attributed annually to the impairments which follow typhoid fever. In this estimate, we have assumed a minimal death-rate from typhoid fever of 20 per 100,000. We have also assumed the number of cases to be ten times as great as the number of deaths in accordance with the usual practice. The number of recoveries, therefore, is 90 per cent. of the cases. For each of the three years following, we have assumed an expected death-rate for the entire country to be at least 15 per 1,000 from all causes. A calculation of the additional deaths due to sequelæ of typhoid fever gives us a

TABLE 7.

CAUSES OF 54 DEATHS IN THREE YEARS FOLLOWING RECOVERY AMONG 1,428 CASES OF TYPHOID FEVER.

Treated By Visiting Nurse Service, 1911, Metropolitan Life Insurance Company.

Cause of death.	Number of deaths.	Per cent. of total deaths.
Tuberculosis:		
Pulmonary	18	33.3
Other forms	3	5.6
Diseases of the heart:		
Endocarditis	4	7.4
Myocarditis	2	3.7
Valvular disease of the heart	2	3.7
Pneumonia	4	7.4
Nephritis:		
Acute	1	1.9
Bright's disease	3	5.6
Acute articular rheumatism	2	3.7
Violent causes	7	13.0
Other causes	8	14.8
Total—all causes	54	100.0


ANNUAL DEATH RATE
- FROM -
TYPHOID FEVER
(Including Typho-Malarial and Continued Fever)
RICHMOND, VA.
1880-1914
190
150
100
50
0
20
10

total of 7,781. This is the price that is paid annually over and above the registered direct loss from typhoid fever according to the results of our study. It is not only the 20,000 immediate deaths that we have to consider, but the additional 8,000 who, although recovered, cannot survive the strain which modern industrial life makes necessary and who either because of tubercular or cardiac lesions die untimely deaths within the first or the second year after recovery.

TABLE 8.

ESTIMATED NUMBER OF DEATHS TO BE ATTRIBUTED ANNUALLY TO SEQUELÆ OF TYPHOID FEVER IN THE UNITED STATES.

Population, Continental United States, 1914	98,781,324
Typhoid Fever:	
Death rate per 100,000, Continental United States, 1914 (minimal estimate)	20
Deaths in United States in 1914	19,800
Cases in United States in 1914	198,000
Recoveries, each year, in United States	178,200
Extra deaths to be attributed annually to sequelæ of *typhoid fever*. (On basis of double mortality in three years following recovery)	7,781

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PUBLIC HEALTH IN MASSACHUSETTS.

The appointments by Governor Walsh to the reorganized State Department of Health of Massachusetts are eminently satisfactory to Massachusetts medical men and sanitarians, and in other communities will command approval on account of the high character of the men selected. When it became evident that there was insistent demand for the reorganization of the State Board, the Governor took a position that is to be commended, and for the details of the plannings he turned to the physicians of the state.

In the conference that was called the dominating note was the desire for the best possible service and his Excellency reiterated his assurance that politics must stand aside for efficiency in the selection of the new officials.

In its final form the Act is quite different from the draft presented at the conference. The changes did not improve it, but it did establish the kind of board that was generally desired, a Health Commissioner and an Advisory Council.

It must be placed to the credit of the Governor that despite enormous pressure he fulfilled his promise to the conference.

Dr. A. J. McLaughlin, the Health Commissioner, on whom now rests the administrative burdens, has an excellent reputation as a sanitarian. He comes to Massachusetts with world-wide sanitary experiences that fit him for command in a Commonwealth with its ports filled with shipping; he is accustomed to large things as is evidenced by his work in the Philippines and he is at home alike in health questions of land and water.

The sanitarians that comprise the Advisory Council will be difficult to match in any community in the world; most of them are men of international reputation. It includes Professor William T. Sedgwick, President today of the American Public Health Association, the man who foresaw twenty-five years ago the coming demand for sanitarians and whose pupils are doing health administration and research in all parts of the country; Dr. M. J. Rosenau, with his experience gained in the large ports of Europe and an education in administration such as Washington alone affords; and Professor G. C. Whipple, a sanitary engineer of international reputation. The selection is the more significant in that these three men were named by Harvard University and the Massachusetts Institute of Technology to head the Coöperative School for Health Officers. Governor Walsh has taken an important leaf from the book of the educational institutions.

The other three members of the Health Council are men who have been quietly doing good things in their own communities. Dr. W. J. Gallivan is one of the Health Commissioners of Boston, whose development of the child hygiene work in Boston has been eminently successful; Dr. D. L. Edsall of the Harvard Medical School and Massachusetts General Hospital, with expert knowledge of industrial hygiene and Doctor Lamoreaux of Lowell, on the staff of the largest local hospital, with a reputation in public service already established as the efficient head of the School Board.

With so excellent a Health Board appointed, Massachusetts should see to it that some defects in the fundamental Act are remedied.

FROM ONE OF THE FOUNDERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

January 14, 1915.

Professor S. M. Gunn,
Secretary American Public Health Association,
755 Boylston Street, Boston, Mass.

My Dear Professor Gunn:

I beg to acknowledge the receipt of a copy of a resolution, passed at the last meeting of the American Public Health Association, congratulating me on the continued enjoyment of health, and its joy and pleasure in being able to illustrate the outcome of my efforts and those of my colleagues in the present prosperity of the Association.

I desire to assure you and through you the Association that I deeply appreciate this very kind and complimentary token of remembrance of the labors of the founders of the Association who, nearly half a century ago, met at Atlantic City, few in numbers but earnest in purpose, and planted the germ of that tree whose leaves "were for the healing of the nations."

It has been a source of infinite happiness to witness from year to year the growth and expansion of the Association under most intelligent and judicious management. As, like Job's messenger, "I only am escaped alone to tell thee," allow me on my own part and in memory of my departed colleagues to congratulate the officers and members of the American Public Health Association on the exalted position which the Association has attained as the exponent of the scientific principles on which the promotion and conservation of the public health is based.

Truly yours,

Stephen Smith.

A CAMPAIGN AGAINST QUACKS.

W. A. Evans,
Chicago, Ill.

Read before the General Sessions, American Public Health Association, Jacksonville, Fla., December 2, 1914.

Public health work is in its beginnings. The present public health activity is merely a curtain raiser. A few years from now twenty fields will be occupied where one is occupied now. Even at the present time it is easy to see where public health work could be better done were there no advertising doctors and no patent medicines. When we include venereal diseases among the contagious diseases, busy ourselves with drug addictions and undertake the work of personal hygiene, the relation of quacks and patent medicines will come more plainly into view.

The quack doctor and patent medicines are products of the same stock. This plant is rooted in the methods and practices of the orthodox medical profession. It will not be possible to eradicate the two-headed plant without a change in some of the orthodox medical methods.

I have the privilege of editing and controlling one department in a great newspaper. One of the fundamental principles of that paper is that it is charged with the responsibility of advocating policies and principles. It is their opinion that under our government, for reasons constitutional and historical not necessary to enter on here, human rights have not had a fair chance when they have found themselves in opposition to property rights. It was to contribute to a change in that point of view that this department was founded.

In order that this might be accomplished with reasonable promptness it is necessary that the thoughts of men should be concentrated on prevention, public and personal hygiene, right living—on health, rather than on disease and its cure. People must take few drugs. Thought must be trained to prevention rather than cure.

By reason of the fact that they were selling advertising they were at once called upon to decide what would be their attitude toward quack doctors and patent medicines. Without hesitation they decided that no medical men would be allowed to make use of *Tribune* advertising space. In this particular field there are few borderline cases, few questions difficult of decision. The ordinary clerk at the advertising counter is able to decide.

When it comes to patent medicines the problem has proven much more difficult. Whisky, brandy, rum and gin advertisements are not considered. No out and out internal medicine claiming curative powers is allowed. Nothing containing any habit-forming drug is allowed. We do take such

laxatives and purgatives as are thoroughly established as such in the public mind. We do take liniments.

Taking as little as we do there are many borderline cases—cases in which I am called on to decide, and ofttimes I find it difficult to get information on which to form an opinion. For instance, it is often difficult to draw the line between foods and medicines.

We could not have undertaken to decide these questions rightly without having our minds directed to the underlying causes for quackery. These I will presently undertake to develop.

The community having come to have confidence in us in matters relating to health began to complain to us of medical abuses. They told us of having been robbed by advertising doctors and disappointed by patent medicines.

It was plain that Mr. Underwood was wrong. If patent medicine was the poor man's medicine it was because it made him poor. If the quack doctor was the poor man's doctor it was because of robbery by the quack. There were so many of these complaints that we decided that it was our duty to so thoroughly expose the quack as to put him out of business.

As we studied the situation we saw that the quack began medicine as a cheap graduate of a cheap school. As he could not belong to medical societies and was not a student he was always about ten years behind the times.

What was his capital? Publicity.

What was the remedy? Obviously, publicity.

The plan outlined was to discover the facts and to give them publicity, to meet publicity with publicity; to publish such facts as that old Doc Sweany graduated from the Medical College of Indiana now defunct many years ago; that he never belonged to a medical society and had no other facilities for keeping abreast of the time; that he had never discovered or perfected a method. But to give publicity to these facts would not have much weight with the people. Instead of that we worked out a plan that would appeal to the public because the routine was exactly that followed by the ordinary man applying for treatment.

We took one or more bright young reporters and drilled them on what to say and how to act. The reporter was to go to the doctor's office as a patient, answer the usual questions asked, submit to an examination, discuss terms, listen to what was said, watch what was done, pay his fee, come away and write up what happened exactly as it occurred.

The men selected were thoroughly examined by several physicians and given certificates of good health. There was nothing in their disease histories on which any treatment could be based. Our best man was a skinny-looking but sound as a dollar young fellow in perfect health. I think it was Lazarus who had divers diseases but Lazarus at his worst never had the divers diseases as badly as Kendall.

As you will note, physical qualifications as well as mental equipment was required of these reporters. The story learned by them was based upon the complaints previously registered with us. It was one on which no one but a fool or a knave could base a diagnosis of disease or found a treatment. Where urine or other specimens for laboratory examinations were required the specimens were faked. A urine would be fabricated from tap water and a little coloring matter. The stories, plain recitals, were written up and recorded at the office. When these were compared it was plain that the doctor made a guess as to what disease would most readily frighten the supposed patient and then pounded away on that disease with great circumstance and much embroidery.

The following was typical of Mr. Kendall's experiences.

October 10. "I visited Dr. I. W. Hodges, second floor of the Crilly Building, 35 So. Dearborn Street, today. I gave the name of H. Vanderveen. 'What is the matter?' asked the doctor when I entered. 'Nervous,' I said. 'Wanted to have you look me over. I haven't been feeling very well.' He looked at my tongue and said it was badly coated. Then he examined my eyes with a magnifying glass. 'Appetite?' he asked. 'Sometimes good. Sometimes bad.' I told him I was worried over my health because I couldn't enjoy the work I was doing—inside work over a desk. 'I think that something is wrong with your urinary tract,' he said. He asked me to bring him a specimen tomorrow. He said his bill would be reasonable and to feel perfectly safe. He did not require any sort of a deposit.

"On the walls of his office are pictures of persons in various degrees of syphilis. He ushers patients out of the office by a rear passage."

October 11. "I called on Dr. I. W. Hodges again today. I delivered to him a bottle which he had provided yesterday, filled with a mixture of water, ammonia and anilin, obtained from the American Medical Association. 'I will have to examine this, Mr. Vanderveen,' he said. 'It will take me ten or fifteen minutes. Wait here.' He returned in about ten minutes. 'Be patient, Mr. Vanderveen, I don't want to say I know what's wrong until I have thoroughly examined the contents of the bottle. I think there is uric acid in it.' In ten minutes he returned again and examined the prostate gland. 'Very sensitive, very sensitive, young man. I will have to make a further examination.' 'What is the prostate gland?' I asked him, 'and how serious is the trouble?' 'It is a gland just at the neck of the bladder. It might be said that it controls the nervous system. When that is deteriorated you are nervous. You are run down and have no desire for work.'

"He went out and returned in a moment; then asked me to step into his assistant's office. The assistant, named 'Smith' (he said), examined me further. 'Very much enlarged,' he said with a long face, 'very much

more than I expected. I want to give you treatment.' 'How much will it cost?" I asked. 'Well, the regular price for this treatment is fifty dollars. You had better take it. You are facing a dangerous thing. Considering your condition financially, I think we can give you the treatment for thirty-five dollars. How much can you pay now?' 'Three dollars is as much as I can give,' I replied. 'We don't like to take less than five. How often can you make payments?' I told him once a week and he seemed satisfied. 'I guess that is enough for this afternoon,' he said. 'I will want to give you another kind of treatment soon, but you are in too delicate a condition now for it. Come in Monday night.' He escorted me to his drug dispensary and provided me with a bottle containing a red fluid. It was marked 'Private formula.' He seemed worried about my condition. 'Now, Harry,' he said when I left, 'I am glad you came to us. You are in a serious condition.' Then he handed me a small packet of pills."

The material was then submitted to the editorial, medical and legal departments and, when O. K.d by them, was run in the most prominent space in the paper. At once we were precipitated with a flood of letters and personal interviews reciting experiences. Stories of this sort filled the paper for weeks. They made good reading. Here is a sample:

A girl working in a candy factory for less than six dollars a week had managed to save nearly a hundred dollars. She developed a cough. A quack took her one hundred dollars and gave her some treatment. She had to keep at work in the factory as she had no money. We had her examined. She was found to be anemic, undernourished and with an active, moist consumption.

The effects were magical, instantaneous and far-reaching. The newspapers that were taking the advertisements of physicians threw them out. The papers printed in languages other than English met and by formal vote decided to take no advertisements from quack doctors. Many of them agreed to follow the lead of the *Chicago Tribune* in the matter of advertisement of medicines as well as those of medical men. Almost daily I am asked by some newspaper whether they shall accept some medical ad. The following is a sample letter:

"*Chicago Tribune*—Gentlemen: Do you know anything about enclosed doctor? He sent us copy for ad., but we refused to run it until we learned that he was no fake, for we don't want to use any advertising unless we know parties to be all right. Let us hear from you." (Nauvoo, Ill., *Rustler.*)

Another illustrative letter is as follows:

"Dear doctor: Your article entitled 'Swindled by Quacks' interested me greatly. Some ten years ago I was the cause of cheating one of the quacks, the Dr. Tillotson Co., now out of business, out of $75.00. At that time the secretary of that institution was a customer of ours and had

explained their methods of employing as a case taker only a doctor of unusual size and impressive appearance who, by reason of such size and appearance, could be depended upon to scare the patient in believing that he was doomed unless he put himself in their care.

"I was leaving the office of this institution one day when I met a friend of mine coming up the stairs. I hailed him and upon investigation found that he was about to be married and, fearing that he was not physically fit, had come to the doctor to find out his condition. He had been told that he had a bad case of varicocele and that unless he was treated at once, for $100.00, this would result in insanity should he dare to get married. He was literally scared stiff and gave them a retainer of $25.00. I asked him whether he had consulted his family physician and he told me that he was ashamed to do so. I made him come back to our store and after a long talk with him persuaded him to follow my advice and see his physician. Several weeks later I met my friend and he told me he had taken my tip with the result that his physician had laughed at him, made an examination and found that the only thing the matter with him was that he was out the $25.00 which he had paid the Tillotson Company.

"I meet this friend of mine occasionally and he never fails to thank me for getting him out of the clutches of that institution and tells me he was nearly crazy with worry when I started him on the right track.

"I believe that, when the relation of physician and patient is based on friendship and not fear, that there will be no place for quacks and advertised curealls."

I may say that in advising these papers as well as in coming to a conclusion in our own matters we are advised almost daily by Dr. Cramp of the *Journal of the American Medical Association*.

The police department assigned some plain clothes men to gather evidence against these swindlers and a series of prosecutions resulted. The post-office authorities increased their activities against these swindlers. Their investigators, by decoy letters and personal visits, were able to secure evidence on which fraud orders were issued. The city council passed the Printers Ink Bill:

"Any person, firm, corporation or association who, with intent to sell or in anywise dispose of merchandise, securities, service, or anything offered directly or indirectly to such person, firm, corporation or association to the public for sale or distribution, or with intent to increase the consumption thereof, or induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or any interest therein, makes, publishes, disseminates, circulates, or places before the public, or causes directly or indirectly, to be made, published, disseminated, circulated or placed before the public, in this city, in any newspaper or other publication sold or offered for sale upon any public street, sidewalk, or other public place, or in any sign upon any street, sidewalk or public ground, or in any

handbill or advertisement or handbill exhibited or carried in any street or public ground, or upon any sidewalk, or any banner or sign flying across the street or from any house, an advertisement of any sort, regarding merchandise, securities, service, or anything so offered to the the public which advertisement contains assertion, representation, or statement which is untrue, deceptive or misleading, shall be fined not less than twenty-five ($25.00) nor more than two hundred ($200.00) dollars for each offense."

All of this contributed to the publicity campaign.

The groups against whom we operated were: The advertising physicians such as Professor Ehrlich, Dr. Edward N. Flint, Dr. J. W. Hodgens, Dr. Howe & Co., Dr. Sweany, Dr. L. E. Zins, Dr. Code, Dr. Wells & Co., Dr. Lawhon and the Atomo-Radio Company, Dr. Sigmund Hirschfeld, Drs. Kennedy & Kennedy, Dr. S. R. Charles, Dr. C. C. Miller, Dr. H. P. Wilkins; the physicians who used drug stores and museums as steerers and cappers and the physicians who make circuits of towns in the country contiguous to Chicago. Amongst these were Dr. Fruth, Dr. Shallenberger, Dr. Walton, Dr. Van Doren, Dr. Piper, Dr. Carson, Dr. Guthrie and Dr. Gable.

These series of articles began October 28, 1913. Most of them have been reprinted and issued as a book entitled "Men's Specialist Frauds, The Methods Used by Quacks in Swindling their Victims." At the present time an out-and-out quack cannot advertise in Chicago except by handbills. We understand that two of the group driven out by the *Tribune*, Drs. Ross and Hodgens, are back. How they will get publicity remains to be seen.

This was the cheapest and most effective campaign ever conducted by the *Tribune*.

In our opinion the situation is not permanently cured. For a permanent cure several radical changes in the customs of our people are required. First, the people must be educated to the point where they cannot be deceived by the lying statements of an ignoramus. If you will allow your mind to run back you will remember that a few years ago the quacks occupied every field of medicine. They have abandoned all but a few fields. The reason why they abandoned these fields was because they became unprofitable. They became unprofitable because of the general education of the people.

Second, the medical profession must change its customs. They must drug less. They must talk less about medicinal cures, specifics, etc. They must combat the idea that because it comes out of a bottle it is good for one; that every disease has a cure if one only could find it. They must convince the people that the function of the physician is not to dope but to guide, counsel, direct and control.

The one great field for quackery now remaining is venereal disease—the practitioners known as men's specialists. When we have educated the people about varicocele, hydrocele, prostatic troubles and venereal diseases, there will be permanent cure of the quack evil. The remedy needs plain speaking.

CO-OPERATION AND CO-ORDINATION OF VOLUNTARY PUBLIC HEALTH ORGANIZATIONS.

FREDERICK R. GREEN, M. D.,
Chicago, Ill.

Read before the General Sessions, American Public Health Association, Jacksonville, Fla., December 4, 1914.

It is difficult to generalize accurately on situations in which one is an active participant. Personal prejudices, unessential and accidental details and limitations of personal viewpoints combine to render contemporary judgment uncertain. Active participants in any movement are engrossed with the administration of details and influenced by their personal and official relations. For them to isolate themselves and their own interests from the situation and to reduce it to general and impersonal terms, requires a mental detachment difficult of accomplishment. Yet it is only by such a process that the value and direction of any widespread movement can be accurately estimated. Let us endeavor to state in as broad terms as possible the existing situation in the present campaign for the improvement of public health conditions and see what deductions can be drawn therefrom.

The epoch-making change in our knowledge of disease has been so often stated as to be commonplace. Yet the inevitable and equally important change which such progress has already made and will make in the future, in professional and social conditions, is only beginning to be appreciated. Up to the time of Louis Pasteur, in the latter half of the last century, with the exception of Jenner's accidental discovery of vaccination, the human race had been, throughout its entire history, without knowledge or ability by which it could control, to say nothing of preventing, epidemics which for ages had scourged and decimated mankind. History records the enormous losses caused by diseases which were then unavoidable and uncontrollable but which we now know can be prevented. The historian of future generations will regard the 19th century as noteworthy, not on account of the rise of democracy, the development of machinery, the discovery and utilizing of natural forces such as electricity, but rather because of those discoveries by which health and long life have become purchasable commodities, which mankind can buy in the same way that he buys food and clothing. Today, this fact is recognized by our leading sanitarians and hygienists. It has not yet even penetrated the popular mind and I doubt whether its enormous economic and social importance and possibilities have as yet been fully realized by any one.

If the importance of the fundamental facts has not been appreciated, it is hardly surprising that the machinery for applying these facts, *i. e.*, organizations interested in public health, should not be coördinated or that much confusion should exist as to the best methods for utilizing the increasing knowledge in this field. The cry today, in all lines of effort, is for organization, for such arrangement and distribution of responsibilities and activities as will produce the largest result with the smallest amount of machinery and expenditure. The prevention of disease and the conservation of human life is clearly too great a task for individual effort. Some form of social machinery is an obvious necessity. If our conceptions of present conditions and future possibilities are vague, it is not strange that the organizations and methods by which this knowledge is to be utilized should be equally vague, largely accidental in origin and based on temporary needs and considerations rather than on any broad principles or critical analysis of the situation. It is significant and I think it must be admitted to be confirmatory of this criticism that, so far as I am aware, in the forty years which cover the development of existing public health machinery and efforts, no attempt has been made to consider the field in its entirety or to ask, "What is the most effective plan which can be devised to meet present and future necessities?" Yet all will admit that, sooner or later, such an inquiry must be made and such a plan must be formulated.

The methods which have so far been developed for improving public health conditions naturally divide themselves into three general classes: namely, official, social and individual. Official and individual efforts may, for our present discussion, be disregarded. The second factor, that of voluntary social organizations, is of the utmost importance, both for the present and the future. Yet it has heretofore been considered in detail rather than as a comprehensive movement and as a matter of individual organizations rather than as a concrete force. It is to this particular field that I invite your attention.

The American Medical Association has been in existence since 1847. Its constructive work, however, is largely confined to the last ten years. Prior to that time, for reasons which are now well recognized, its activities consisted in holding annual meetings and passing occasional resolutions. While its moral influence was no doubt of great value and by no means to be underestimated, it was not until the development of the JOURNAL, under the able editorship and management of Dr. George H. Simmons, that the Association found itself in a position to finance definite undertakings. The different projects which it has taken up since 1905 are familiar to all of you. In 1910, the development of the Association justified the establishment of a definite body, the Council on Health and Public Instruction, charged with the duty of representing the Association before the public and of studying the public health situation as a social phenomenon. Dur-

ing the four years in which the Council has been in existence, it has given careful consideration to the question of its exact function and mission. Obviously, any effort to duplicate the work of existing organizations or to compete with national, state or municipal boards or with existing societies would only add confusion to the present situation. If the Council has any justification for its existence, it must lie in the development of a field of activity entirely distinct from that of existing organizations. It has seemed to the Council that its mission lay in the establishment of a focus around which other activities could be grouped and through which they could be coördinated, by which material and information of all kinds could be collected and through which, so far as possible, isolated forces could be brought into communication with each other. Before making any definite plans, it seemed advisable to the Council to ascertain what was already being done in the public health field. Accordingly a careful study of the public health work of federal, state and municipal bodies and of independent social organizations, has been undertaken, to learn what is actually being accomplished in each of these fields; how much it is costing; who is paying for it; how much duplication exists; what are the needs of each of the units; and how their efforts can be coördinated.

These plans are too recent to make it possible to state the results. Plans are now under way for a survey of federal and municipal public health activities. During the last year, a personal survey of the state boards of health and their work had been made by one of the members of this Association, acting as the special representative of the Council. His report will, it is hoped, throw considerable light on this field.

The remaining division, that of voluntary organizations interested in public health improvement, has been under consideration for two years past. In October, 1912, the Secretary of the Council made the following recommendation:

"Increased interest in public health and increased efforts to improve sanitary conditions have led to the organization of many societies and bodies interested in special phases of the public health campaign. There is danger of present interest leading to overorganization and overdevelopment of unnecessary societies with overlapping and interfering functions leading to the duplication of machinery, the incurring of unnecessary expense and confusion in the public mind as to the relation between different organizations interested in this campaign. The Secretary suggests that the Council consider the advisability of calling a conference of executive officers of the leading organizations in this field to discuss mutual coöperation and proper division of the field with the elimination of unnecessary organizations, if such exist, and the consideration of plans to coördinate necessary organizations and to discourage the creation of unnecessary ones."

At the same time, the Secretary submitted a list of 18 organizations which

should be invited to such a conference. The Council approving of this suggestion, correspondence with the executive officers of these organizations was taken up with the result that the list rapidly increased to 50. A conference of executive officers was called at the headquarters of the American Association for Labor Legislation on April 12, 1913, to which 39 organizations sent representatives. After an exhaustive discussion, in which the need of better organization and coördination was generally admitted, a central committee of 15 was created, to consider the entire question of public health activities through voluntary organizations and the ways in which these activities could be improved.

This central committee, of which Mr. John M. Glenn of the Russell Sage Foundation is chairman, met in New York the following June and, after discussion of a number of plans, directed the secretary of the committee to undertake a voluntary survey of the various independent organizations covering their membership, resources, activities and plans. The election of the secretary, Dr. Livingston Farrand, to the presidency of the Colorado State University, postponed this survey until recently, when the committee was fortunate in securing the Secretary of the American Public Health Association as the secretary of the committee under whose direction this study of voluntary organizations has been begun. While the committee is without means and is therefore limited to volunteer services, it is hoped that this survey, limited as it necessarily is, will furnish sufficient facts to justify further study of this field. Any discussion of details of existing organizations must therefore necessarily be deferred until the completion of this inquiry.

But while we are waiting for specific data, certain general considerations and criticisms are worthy of notice. As these criticisms apply, not to individual organizations, but to the field as a whole, a general statement of the existing situation may be illuminating.

Public opinion is the basis of effective legislation. Hence the creation of public opinion is necessarily the first step in any movement. The object of the organizations under discussion is the stimulating and crystallizing of public opinion, with a view to securing the adoption of corrective or restrictive measures. If educated public opinion is necessary in securing ordinary reforms, it is still more so in the public health field. The causes of disease are microscopic and therefore invisible to the eye. They can only be recognized by trained, scientific men. The average man and woman must therefore accept, on faith, the existence of causes invisible to them. This renders public education all the more necessary. It also emphasizes the responsibility of the state and its duty in protecting its citizens from dangers which they themselves cannot recognize. The objects of the organization of these voluntary bodies composed of physicians, philanthropists, sociologists and others interested, are: first, to

stimulate scientific study of a particular disease or of a portion of the public health field; and second, to educate and stimulate public sentiment with a view to securing better conditions through the force of public opinion or through the passage of appropriate legislation.

The manner in which these bodies have been organized is much the same. A small number of men and women, especially interested in some particular problem, have become impressed with the necessity of a national organization devoted to their particular subject. A call has been issued for a meeting at which a general program has been presented emphasizing the dangers of the particular disease in question, the need of further study and control, the possibilities and means of suppression, etc. During the enthusiasm engendered by this first meeting, some one has made the customary American proposition to organize a national society. Such a motion generally carries unanimously without opposition or discussion, as any positive and apparently constructive proposal always will in a mass meeting. Officers are elected, constitution and by-laws are adopted. If the cause is a popular one, and if the leaders are energetic, enough money may be obtained to secure the services of an able man or woman as executive secretary and to equip an office. If the membership is limited or the dues are low, then either the part time services of a good man or the whole time services of a mediocre man are secured. If financial support is even more limited, a volunteer executive gives what time he can spare from his own work. In any event, an essential part of the duties of the secretary is the securing of enough new members and renewals of old members each year to get funds enough to keep the society going. Consequently each organization is a competitor with each other organization for members. As those interested in these movements are comparatively few, each organization sends out each year appeals for support to about the same persons, including state and municipal health officers, officers of national, state and local medical organizations and persons known through their connection with other organizations to be interested in such movements. From this limited field each organization secures a certain number of members.

If any doubt exists in your mind as to the situation, ask yourself to how many societies you belong and from how many you have received during the last year circulars, letters and requests for membership.

Of this limited number of persons supporting these movements, a surprisingly large proportion are physicians. As an illustration of the extent to which many of these organizations are supported by physicians, I have had a tabulation made from the last available membership lists of three organizations with the following results:

	Members.	Physicians.	Per cent.
American Society of Sanitary and Moral Prophylaxis	260	194	74.4
American Association for Study and Prevention of Infant Mortality	765	333	44.6
National Association for the Study and Prevention of Tuberculosis	2,034	1,049	51.5
	3,059	1,576	51.5

Not only are from 50 per cent. to 75 per cent. of the membership of these organizations drawn from a single class, but comparison of the membership lists of the leading societies will show that they contain the same names in probably 60 per cent. of their membership. This speaks well for the enthusiasm and unselfishness of these men, but it also means that the present public health movement is being largely supported by a very limited number of people, multiplying themselves in a number of organizations and so producing a membership that is largely fictitious. New organizations naturally turn for support to those persons who have already shown their interest by supporting existing organizations, with the result that each new society practically goes over the same field that its predecessors have canvassed. The burden, both personal and financial, of supporting the increasing number of organizations is constantly becoming heavier. The persons solicited are those of standing, knowledge and experience whose coöperation would be most valuable. They would all gladly support a single representative body, but they cannot belong to and contribute to all.

After the central organization is more or less complete, the society generally proceeds to organize state and local branches. This also seems to be ingrained in our American idea of administration. A few interested persons in each state are asked to take the lead in organizing a state branch. Such a state society naturally has a more limited support than the national organization. It is generally without adequate funds, usually has to rely on a volunteer secretary without facilities for work and in consequence its activities are limited to the two or three days of its annual session and during the rest of the year, it is practically inactive. Each year, an effort is made to stimulate interest, to secure a presentable program, to obtain as large a registration as possible and in general "to make a showing." Yet even in the strongest, best managed and best financed of these national organizations the majority of state branches are practically paper organizations. Even under these conditions, it has been found practically impossible to keep the various state organizations in existence. When one considers the extent to which support has been divided, this is not strange. Still less is it strange that when we come to county or city subdivisions,

they are few and far between and are due more to accident than to any systematic plan of organization.

We have, then, an indefinite number of national organizations, each attempting to cover a limited portion of the field, each appealing for support to a limited number of men and women on whom, to an increasing extent, is falling the burden of sustaining these organizations. Each national organization is keeping up an administrative machinery, to the best of its ability, duplicating office work, mailing lists, bulletins, pamphlets and other educational matters and expenses, without regard to what is being done by other organizations. Most of these organizations are trying to develop subordinate state societies although it is perfectly evident that such societies are doomed to failure owing to the inability of the public in any state to support an indefinite number of such organizations. Conventions, congresses, annual meetings and conferences are being held, to such an extent that it is impossible to keep track of them or to read the papers presented before them, to say nothing of supporting all of them or of personally attending the meetings. In addition to all this, there are constantly being sent out proposals for the organization of new societies and appeals to support by membership, subscription, contributions or attendance an increasing number of special organizations working without common leadership, unity of purpose or coöperative plan of campaign.

Specifically then the criticisms which I would make on the existing situation are:

1. The justification and ostensible purpose of these societies are the organization of the public for united effort. This is not being accomplished by present methods. Although the avowed object of all of these organizations is the creation of public sentiment and the education of the people, we have provided for the physician, the sanitarian, the philanthropist and the sociologist, for everyone, in fact, except the average citizen. The existing forces resemble the celebrated regiment to which Mark Twain belonged. They are all officers and there are no privates. For the man or woman who is specially interested in tuberculosis, infant welfare, cancer, school hygiene, correct posture, open air schools or epilepsy, there is a place, provided the individual knows of the special organization on this subject or can be brought in touch with it. But for the man and woman, the housewife and the head of a family, who are or might be interested in public health as a general proposition and in the improvement of conditions under which they and their families must live, there is practically no place. They become confused in trying to determine to which of the many causes presented they shall contribute. The appeal lacks force because it lacks unity. We have divided the public health field up into so many portions that one must practically be a specialist or have special interests in order to find a place. There is no provision for the ordinary citizen. Not only

is support divided, but influence is likewise weakened. Such public sentiment as exists is divided among so many interests as to lack the force which a single united body would have. When an effort is made to use the influence of the organization on the public or on legislative bodies, it too often fails or the influence is minimized by lack of unity.

2. The second criticism, which follows as a corollary of the first, is that multiplication of organizations, each of which seeks to secure its support from practically the same persons, is necessarily self-limited. The number of organizations which a comparatively small number of persons can support is naturally limited. There have lately been sent out circular letters from the headquarters of a recently organized society asking for subscriptions and members. Probably all of you have received these letters. The objects of this organization are commendable in every way, yet they are practically covered by at least three existing societies. Where then is the need of a specific organization to take up a work which could and should be done by one or more already in existence? Special organizations, having a limited appeal and a limited patronage, cannot be multiplied indefinitely. This limit we have probably already reached if not passed.

The attempt to form state and local branches is becoming increasingly difficult, if not impossible. If the field is too restricted to justify an unlimited number of national organizations, the possibilities for state and local organizations must be still more restricted. To expect the public in a single state or a single city to support half a dozen, ten or fifteen special organizations is entirely out of the question. Such a plan cannot fail in the end to be disastrous.

3. The third criticism which can be brought against the existing situation is that although all of these organizations exist for the same general purpose, namely, the prevention of disease, and although their membership is largely composed of the same men and women, yet they have today no common plan of campaign, nor any method by which such a common plan can be devised and executed. We are in the position of an army made up of from fifty to sixty allied forces, each fighting under its own standard and under the orders of its own leaders against the common foe and yet possessing no common plan of campaign nor working in accordance with any definitely formulated program. It is needless to enlarge on this situation. Such a condition can only mean overlapping, duplication, waste effort and lack of efficiency.

4. The fourth criticism is that there exists at present duplication of offices, equipment and expenses, unavoidable under existing conditions. The postage alone on the letters, circulars, papers, bulletins, etc., sent out by these organizations must be enormous. To one office recently came six duplicate letters soliciting membership in a newly formed organization.

Estimate the amount of mail from these different bodies which comes to you in a year and then consider the amount of printing, postage, and clerical work involved. You will realize that the cost is pretty high when compared with the results, and that this is largely due to lack of system and coördination. The principal object sought for by many of these bodies, is to secure results which at the end of the year will enable the secretary or the executive committee to make a report that will justify the existence of the organization. Yet how many of these organizations only succeed in keeping their own machinery going, without any actual output!

5. The fifth criticism is that the duplication and multiplication of organizations has on the public a confusing rather than an educational effect. Newspaper editors are today literally swamped with bulletins and press matter. With the best intentions in the world on the part of those issuing them, these are often contradictory. It is impossible for any newspaper to use all of this material. The editor cannot separate the authoritative and responsible from the spasmodic and incidental. Too often he gives up the task as hopeless and refuses to use any material, where he would be glad to use properly prepared matter from a single authoritative source. The increasing number of conventions, congresses and conferences, the press reports of which are often exaggerated and distorted, further serve to bewilder the newspaper editor and the newspaper reader. Yet the American newspaper today offers the most promising medium for public education on health topics that can be secured, while the growing interest of the newspaper management in this field and the increasing willingness of newspapers to coöperate must be apparent to every one who has followed this subject for any number of years. Authoritative matter from a single central office would be gladly used, but the mass of material at present is such that most of it goes into the waste basket.

Summing up the present situation, there exist today an indefinite number of uncoördinated, unrelated organizations which have originated accidentally rather than in conformity to any plan, which do not provide a place for the general public, which are organized on lines that are necessarily self-limiting and which are financed on a system which is highly expensive in proportion to the results secured. They are at present confusing quite as much as they are educating the newspapers and public opinion. If these are the weaknesses, what are the remedies?

Let it be admitted without question that these various organizations have been created with the most unselfish and public spirited intentions, that the men and women who have organized and maintained them are entitled to great credit for their efforts, that these organizations have each of them been the source of much good. But the plans which have been followed during the past twenty years are now rapidly becoming obsolete

Public knowledge and interest on all health topics is rapidly increasing. What is needed now is not stimulation so much as wise and definite guidance of the public health movement. The people are interested and are in many cases determined to secure better conditions. They want more information not on single topics but on the entire field. They want advice which shall be expert and authoritative as to what shall be done. The more people that can be enlisted and brought into definite personal contact with the entire movement, the better the results will be. There is great need of a comprehensive, carefully planned and widespread general organization to which all the men and women interested in this subject can belong, in which they can find a place to work, from which they can secure educational material and through which their influence and energies can be systematized and effectively coördinated.

My purpose, therefore, is not one of condemnation of previous conditions. It is rather to raise the question whether the time has not come for the creation of a united, coherent and effectively organized public health body to take the place of or at least to coördinate the independent, accidental and uncorrelated organizations which have so far occupied the field. If anything definite is accomplished in public health reform, it must be through the education of the average man and woman rather than through the efforts of the physician, the specialist or the sociologist. These must indeed act as leaders and furnish the necessary technical information and experience on which successful efforts must rest, but the rank and file of this public health army must be drawn from the public. An ideal organization would be one without limitations as to subject, which any man or woman who desired could join by the payment of a nominal membership fee. A national organization made up of and supported by subordinate state organizations which are in turn composed of local branches is the logical method in this country. But we should substitute for the existing many and weak organizations one strong public health league in each state made up of all classes of citizens. We should appeal to the public to support a public health campaign rather than to ask the public to support separate organizations for each particular phase of public health work. Nor would it be necessary for the special national organizations now in existence to lose their identity in such a body. They could become affiliated organizations or sections of a national organization existing for the purpose of stimulating interest in their special subject and working through the general organization in states and cities rather than through independent organizations of their own. The National Association for the Study and Prevention of Tuberculosis, for instance, could become the Section on Tuberculosis of the American Public Health League, or could remain an independent organization affiliated with the general body as a special society. If it wished to bring some phase of the tuberculosis question to

the attention of the public or to issue a special bulletin thereon, this could be sent out through the state and local organizations of the general body. In the same way, material bearing on cancer, sex hygiene, school hygiene, open-air schools, mental hygiene, epilepsy or any of the other numerous subjects on which national organizations now exist, could readily be distributed through the general machinery. The headquarters and offices of such a body would naturally serve as the clearing house for the various allied organizations or sections. Direction of such a National Health League could be lodged in a central board made up of executive officers of representatives of sections or affiliated societies. Such a body could logically take up the much discussed question of the publication of a popular journal or magazine on public health. Under proper editorial and business management backed by the united organizations now in the field and by a new and general public health organization made up of all classes, a monthly journal at a subscription price of one or two dollars a year including membership, could within a short time have a circulation running well up into the hundred thousands. The public interest in and demand for such material is shown by the establishment in an increasing number of newspapers of departments on health as a regular editorial feature.

The accidental, fragmentary and disjointed method which has been followed for the last twenty years should give place to a carefully considered, well worked out, comprehensive plan of organization with the elimination of unnecessary organizations and the discouragement, in the future, of the organization of new and unnecessary bodies. Such a reorganization has already begun in two states. In Minnesota, the State Association for the Study and Prevention of Tuberculosis was merged in a new organization called the Minnesota Public Health Association, which coördinates the State Board of Health, the State University, the State Normal and School system, the newspapers, churches and all other educational bodies in the state. This fusing of resources and support made it possible for them to secure, at once, a full time, salaried, highly trained public health man as executive secretary. In Texas, the same thing has occurred. If all the public health organizations in a state can be united to form a state Public Health Association, why could not all the public health organizations in the United States be united to form an American Public Health Association?

Is it not worth while to consider whether your own organization might not be expanded to meet this demand? You are today the only general public health organization in the field. You have the machinery, the journal, the executive officers. All that is necessary is to expand your plan of organization so as to provide for unlimited, general membership at a low figure, to take steps for the creation of state subordinate branches, to make over your journal into a popular instead of a technical publication

and to invite the other voluntary organizations in the field to a conference to discuss the possibility of their becoming sections of the American Public Health Association. We have today a single national organization in the medical profession. Its present prosperity and activities are due entirely to the high grade of its publication and the fact that it is today a necessity for the up-to-date physician. A popular public health journal which would meet a similar demand on the part of the public would have a vastly wider field in that it would appeal to all classes instead of to the members of a single profession. The influence of such a publication on public and legislative opinion would be vastly greater than that of any existing organ and would increase proportionately with its development.

The present method of separate, numerous public health organizations is necessarily self-limiting. Out of the present medley must come some one organization which will dominate the field. Shall it be a newly created organization or an old organization reconstructed? If the latter, which of the existing organizations shall it be? All the conditions point to the American Public Health Association as the one best fitted to fulfill this mission. Is it not possible for your association to become in fact, as well as name, a national public health association for the coördination of all of our voluntary public health activities?

EFFECTS UPON PUBLIC HEALTH AND NATURAL PROSPERITY FROM RURAL DEPOPULATION AND ABNORMAL INCREASE OF CITIES.

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Read before the General Sessions, American Public Health Association, Jacksonville, Fla., December 1, 1914.

Not for many years in the history of the American Continent—or indeed of Europe—has the subject of this paper seemed to be more appropriate for discussion than at the present time. Dr. Max Nordau in his work on "Degeneration" written twenty years ago, in comparing conditions existing about 1840 and at the time when he wrote, says, "It is about that date when that generation was born which has witnessed the irruption of new discoveries in every relation of life and thus personally experienced those transformations which are the consequences." Since that time another generation has grown to manhood in the United States and in Canada and urban populations have continued ever to increase as illustrated in the following table:

TABLE SHOWING PER CENT. OF URBAN POPULATION TO TOTAL IN THE UNITED STATES AND CANADA.

	United States.	Canada
1860	16.5%	17.0%
1870	21.0%	18.7%
1880 (4,000)	29.5%	21.3%
1890	36.1%	32.1%
1900	40.5%	37.7%
1910	46.3%	45.1%

It is further probable that a notable proportion of the younger members present in this meeting are a town product and hence cannot fully appreciate the meaning of these figures; but such certainly can understand the urban conditions under which the millions of the poorer people live in the cities where each is engaged in his special public work. That even the best work which many of my co-workers in the Town Planning Association and National Housing Association are doing in the matter of improving the dwellings of the work people is beginning to appear to them palliative or curative rather than preventive is now becoming apparent as seen in the wonderfully rapid evolution of the suburban and Gardeh City Movement. One does not require to repeat statistics to show that the mortality rates of our cities are higher in the crowded areas and that tuberculosis finds

its chief victims in the 80 per cent. of the population commonly spoken of as wage-earners or working people. What I desire especially to emphasize is that which is so hard to measure statistically, viz., the silent but more permanent and far-reaching influences and effects which are the outcome of the intensity of life under modern urban conditions. It would be a matter for wonder if the ordinary city child did possess any particular knowledge of how his food is produced or where it comes from, other than from the corner grocery and brought by the delivery van. The same is true regarding his knowledge of the ordinary facts relating to his constant relations to the world around him; but which are knowledge at first hand to the country child or to the commuter. The earliest and most constant phenomena borne in upon the city child's consciousness are buildings across the street, street cars, elevated tracks, rooms in shadow, noises, as never-ceasing telephones, house bells, cries of newsboys and street hawkers of every sort. Similarly the knowledge set forth in the school-room is mostly presentations of facts at second-hand; the real facts for the school child are those of the street-life, viewed in the case of the child of the rich from the detachment of an automobile. Except for the occasional boat trip to some Coney Island for the ordinary city child or the home at the seaside for the children of the rich, it is apparent that the mind of such has in a very peculiar sense been deprived of opportunities for growth under conditions where the objects, which produce impressions upon the eye and ear and other senses are those natural ones which were the educative basis of a previous generation. It will be remembered that within thirty years this change has extended from 25 per cent. to 50 per cent. of the total population of the United States and Canada or to more than 30,000,000 people. It will further be realized, as we think of the matter, that the nursery toys or town office fixtures, the busy factory or the darksome workshop of the sweated seamstress, the school primer or the bank ledger and the swift shuttle or the clanking machine are the objects whose reflected outlines create the impressions which enter into the consciousness and make up the intellectual world of most of this 30,000,000 from childhood to youth and create the permanent characteristics of the mind and form the chief subjects of their interest. Their literature from the daily press to the pictorial magazine never fails to keep repeating stories and pictures until certain modes of thought become permanent; and for good or ill the people of a city or even a nation come to reflect certain types of ideas too often but the echo of the teachings—whether shallow or profound—of some one or more clever writers or else come to be the votaries of some amusement cleverly promoted, whether it be the baseball game or the ubiquitous moving picture show. It will have been observed that in all these modes of building up the intellect and making public opinion very little part, indeed, has been taken by the sanitarian or public health

officer, although specialists in special foods and the cure-all advertiser have both been insistently pushing their wares.

It will further have been noted in these illustrations of how the thought and intellect of urban dwellers is largely formed that nothing has been said of the education along economic lines which enters into the process. While there is no city exactly the replica of another in its type of industry, manufacture or trade, yet all have the essentials more or less common of being producers and distributers, varying, however, greatly in proportion. Thus it has been stated that London with its 7,000,000 people has only 638 factories with a total motive horsepower of not more than twice that of the *S. S. Mauretania*, while the 100,000 population of Oldham has spindles enough to turn out yarn for all the weavers of Europe. Perhaps what is even more notable is that of the 45,000,000 people of Britain, 6,000,000 possess half the business capital. It is, indeed, an economic fact that almost seven-eighths of the total urban population everywhere are wage-earners and dependent from day to day upon what is paid to them as producers, after rent, interest and profits have been satisfied. But the reversal of early American economic conditions is not limited to cities alone, since I find that according to the census of 1910 Illinois showed an increase of over 10 per cent. within three decades in rural tenancies or had 41 per cent. of her rural area occupied by tenants. In round numbers, therefore, it may be said that more than 60 per cent. of the total population of all North America is the owner of labor as a commodity to be sold, which if not in demand makes its owner within a few weeks in practice a pauper, since when labor is in excess of demand, especially in cities, its price is fixed at the minimum living-wage standard and, if in demand its owner, through improvidence due to conditions so unusual, too often creates a similar precarious condition.

I have attempted in the foregoing to summarize the processes which have been evident with the growth of cities and which move along with ever-increasing momentum. The phenomena of the routine of daily city life as a part of it are inevitable, necessary and even desirable. The morning paper, the train, the auto, the phone, the dictograph, the hurried lunch, the rush to the train or to the theatre, are all so unlike, for instance, New York at the period when G. W. Curtis's "Prue and I" were building "Castles in Spain" that Rip Van Winkle would indeed rub his eyes if he waked up in the New York of today. The human machine can undoubtedly, if given time, adjust itself to conditions enormously different from what have hitherto been deemed normal; but probably no better evidence of non-adjustment can be given than in the hyper-æsthesia, which that marvellous man, Edison, has developed that prevents him from sleeping more than three hours in twenty-four and which at the same time causes him to enunciate the theory that man need no longer be a sleeping animal;

that speeding up is all that is necessary if properly graduated, and that enormous time will thus be saved to devote to labor. It is curious that it is not seen that all this speeding up is not alone an accumulator of rent, interest and profits at the one end, with a comparative minimizing of home life and distributed profits to the industrial wage-earner at the other; but further in the degree that the wage-earner's work becomes specialized it is the means by which he becomes unalterably and inextricably fixed to Ixion's wheel in the vortex of labor and is helpless as a child, when the wheels cease turning from an overstocking of the market or the financial cataclysm —induced by war.

I have for many years observed the phenomena of abnormal urban increase in modern so-called progressive countries and with many others have tried to interpret their meaning and predicate their results. Today as I am writing this I have had an illustration of the results of the simplest stage of the process. I am covering my rose bushes for the winter and ask my neighbor's part-time furnace man to help me. I find he is living in an old dwelling with leaky roof, rent free, and looking for odd jobs. He tells me he has been in Canada six years, comes from Cheshire, where he was brought up on a farm till he was fifteen, when his parents died and he went to Manchester. He married, has now a wife and four children. For two years in Canada he worked on a dairy farm near Ottawa; then his wife wanted city neighbors and so he moved to Ottawa. When the war broke out he was making $11.00 and paying $4.25 for rent weekly—manifestly within a week without work becoming a pauper. I further recall the events of forty years in the city where I was a student and long resident and today know of almost no prominent wholesale house then doing business, which is in existence today and but few of the sons of the most prominent scholars, physicians or clergymen who have maintained in any degree the position of their fathers. If, however, we examine the situation broadly it does not seem difficult to discover underlying causes, which would seem to account for the widespread results of what we cannot define more exactly than by the term "Degeneration." Dr. Creighton Brown said recently, "The tendency of civilization has been to transfer the burden of breadwinning for the masses of the people from the muscles to the nerves. . . . It is certain that we are more jumpy than we used to be, have to be more on the alert, and so make sharper demands on our nerves, and are prone to those nervous breakdowns that lead to mental disorder. We have been crowding our people into towns, where bustling and nervous agitation are inevitable; we have been bringing up our babies (where we have any) on anything but mother's milk and by the employment of women in many industries have curtailed that family life in which the nervous child best lives and thrives." The notified lunatics of England increased in fifty years by over 262 per cent. while the population

increased by only 85 per cent. Dr. F. W. Mott, pathologist to the Asylums Board, London, says, "A neuropathic heredity is the most important cause of insanity. . . . There are two very numerous classes of individuals whose conduct is anti-social and who at present are not registered or controlled. They are first the chronic, incurable inebriate, dangerous to himself and to society and responsible for a large proportion of the crimes of violence; secondly, the higher grade imbecile of feeble-will power, slender sagacity and energy and lack of moral sense. Although the feeble-minded may be met with in all kinds of society, they are especially to be found amongst the submerged denizens of the one-roomed tenements of our cities." Dr. Feré of Paris associates with this feeble-mindedness the great increase of hysteria at the present day, due directly to what he terms the "fatigue of the present generation," while Dr. Lewellys Barker says "that abnormal expressions of emotion or disorders of the will manifesting themselves in abnormalities of conduct" can be evidences of unsoundness of mind. Dr. Charles Dana of the National Committee for Mental Hygiene has estimated that unsoundness of mind in the United States in 1904, as recognized officially or those in institutions for the insane and feeble-minded, cost $60,000,000 annually and the loss in industrial activity $30,000,000 more. These figures, moreover, do not include the criminals and paupers who add so enormously to the public expenditures; but who, as shown by the New York Courts and other charitable institutions, must be included to the extent of at least 50 per cent. under the category of mental defectives.

But one might continue indefinitely, if time permitted, adding yet more sombre shades to the picture already painted in darksome colors. It will have been noticed that in what I have said no reference has been made to what the direct rural losses have been through depopulation. An examination, however, of the Census of 1910 for the older States and Provinces makes it quite evident that the rural losses of the descendants of the old Anglo-Saxon stock even in ten years have been relatively great, and in 40 years have been enormous. Economically speaking the great bulk of them have been transferred from the land-holding class of producers of raw materials to the class of middlemen and of wage-earners; but all in the most exact sense make an addition to the enormous army of dependents upon the energy of organized capital, and play some part in its exploitations whether of *rent*, *interest* or *profits*. How much relatively this organization means may be judged from single figures. In the Province of Ontario, Canada, the Census showed the capital invested in agriculture to be $1,283,000,000 as compared with a total of $1,247,500,000 in manufactures and industries for the whole Dominion of Canada. Alongside these figures may be placed those collected by Professor G. L. King, Ph.D., of Philadelphia, wherein he has pointed out that the consumer pays from 65 per

cent to 265 per cent. more than the farmer receives; or New York City consumers pay $645,000,000 for food which at the railway terminal cost only $350,000,000; or the people pay some $200,000,000 for cartage and delivery costs and in retailers' profits. What seems an elementary fact in economics is that it would seem infinitely better, if a very large number of these wage-earners in cities (so absolutely helpless and dependent on the one hand on what capital is prepared to allow them in wages, when rent, interest, and profits have been satisfied and on the other forced to pay, so to speak, at the contractor's store whatever price he chooses to charge for life's necessaries) were living in the country where they could produce at least the necessaries of life for themselves and become in some measure the possessors of physical, mental and moral independence, while at the same time bettering the conditions of life for the dependent toilers of the city. The social isolation of rural life and its initial hardships have long been set down as the chief causes for the depopulation of the country districts; but there is abundant evidence that with the migration of the more ambitious and energetic to the cities to engage in commercial or professional pursuits, the rural communities have suffered so seriously in mental equipment, scientific advancement and business experience, that organized finance, commanding the railroads and other modes of transport and of distribution to which have often been added the control of coal and other minerals, today dominates absolutely every step from the producer to the consumer.

Remembering the enormous displacement in population where in Canada during the last decade urban population increased 62.5 per cent. and the rural only 17 per cent. with an immigration in ten years equal to one third of the previous population, I have frequently spoken to prominent business men and Boards of Trade regarding the possibility of reversing the process by employing capital now in the hands of individuals or companies in purchasing areas of land and by utilizing business methods make a modern industry of agriculture. I do not remember to have met a single important urban investor or taxpayer, who was prepared to lessen by one individual, the taxpaying consumers of his own city through transferring such bodily to engage in agriculture—an industry, indeed, which he was by no means assured would prove a success. He would, on the other hand, be quite prepared to finance half a dozen *tied* stores in the suburbs, because he was confident that his "man Friday" to save his own dollars would be sure to extract enough from the consumer to at least pay the interest on notes, while the stock would guarantee the principal.

I do not come with any ready-to-hand panacea for a world-wide evil, worse perhaps in undeveloped India or China, where the money-leader in the small villages is even more powerful and paralyzing than our capitalists and financial institutions; but two or three outstanding facts seem to me

so direct in their bearing upon the problem that I deem them at least worthy of reference as illustrations of the actual situation. In 1900 the city of Chicago, that part of Cook County, Illinois, not in farms, contained 190,077 acres, which with a population of 1,775,515 gives 8.1 persons per acre. Of course the hundreds of acres included in railroad stations and sidings should be excluded from the house area; but the remarkable fact exists that during the ten years following, only 19,440 acres were added to the city and yet the population increase was 546,074. This means, if the new population were placed on the new area that the density per acre would be 28 or a jump of 300 per cent. over the previous density in 1900. Of course this distribution did not actually so take place; but what did occur was the enormous increase of tenements and apartments, so that there were 8.12 persons to every house in Chicago, and nearly one third increase per acre over a city having 210,117 acres of area. The picture seems to me one easily understood. No figures are given of Chicago real estate values, but the agricultural lands of the state are reported as having increased 96.5 per cent. in value during the decade, although their productiveness per acre had not increased; while absentee landlordism has notably increased and tenancies have proportionately multiplied everywhere whether in country or city. Year by year sees, whether in the United States or Canada in the older districts, the power of capital ever growing and the number of the proletariat ever increasing. From a most unexpected quarter come words, indicating in the most exact way possible, what a scientific observer, for many years separated by his national duties far from our ordinary northern cities, believes to be the essential cause of poverty and unsanitary conditions. Surgeon-General W. E. Gorgas of the Panama Canal Zone has declared out of his own experience that poverty "is the greatest single cause of sad sanitary conditions." The solution in his opinion lies in the adoption of single tax through its effect in eliminating the poverty due to inequitable division of wealth. Sanitation is most needed by the class of people, who would be, most benefited by the single tax." How mysteriously the possession of land, whether a million acres in Mexico or a single suburban lot with inflated values, blinds or distorts the vision of every one as to the essential, one might say eternal, principle of land holding, viz., that of *productive occupancy*, and to the logic of taxing the holder of land on unearned increment if holding it unimproved, while the individual, municipality or state makes it valuable through the output of energy in the shape of work or capital expended, need not be dilated upon. To any student of sociology, who will analyze the social and economic phenomena within even his own personal range of experience it must be evident that while the amenities of life in every day society seem to be ever increasing, yet as a matter of fact the machine of what is called the *competitive system in a capitalistic age* is today so complete, operated so delicately and well by the

most highly trained technicians that the ordinary artisan or workman, but a cog in the wheels, goes on playing his part mechanically, almost unconsciously, hypnotized by the rhythmic hum of the wheels; but awakened suddenly to the real situation through some natural or economic catastrophe, he too often finds himself a helpless supernumerary among the unemployed, absolutely lacking in any independent resources or means of even a simple subsistence. Death-rates may fall through the application of now well-understood sanitary and scientific methods against the contagious diseases, the maternity nurse may soothe the brow of even the most helpless victim of the system in the slum, perhaps made tidy by the inspector; but the human wrong will continue until somehow, somewhere and sometime the daughter of the horse-leech with her cry:—Give, give, give! is forcibly or, if need be rudely, stopped from taking her toll of rent, interest, and profits growing out of the anomalies of our land system and of its congener, viz.:

How real is the necessity for education along ethical lines may be judged from a closing paragraph in the Third Annual Report of the Philadelphia Housing Commission:

"The more conditions improve, the greater the difficulty, but the more imperative the duty to do this work. What is won can only be retained by protective measures. Thus in Philadelphia, with the development of the city as it has been going on, certain definite causes stand out as responsible for communal defects. These causes are continually active and cannot be controlled unless, for example, a zoning system is established, regulating the occupancy of residential areas and also the changes in the uses to which buildings are put, so that a well-established home district cannot be depreciated in value nor transformed as to its desirability by the incoming of an undesirable trade.

"Again, the system of taxation has a direct effect upon the building of homes and home ownership. Some changes need to be introduced that will more equitably distribute the assessment and tax levy. Moreover, it is not at all inconceivable that a preferential system of taxes may be necessary in order to stimulate ownership and retention of homes by the small wage-earning class. It may be advisable also for the municipality to create loans similar to the plan of the continental cities, to enable the wage-earner to borrow at low rates funds to provide himself with a home. Especially is it true that, where conditions exist that were once legal but, owing to a better knowledge of sanitation, with its attendant law, now are illegal, municipal loans should also be made available to enable the home owners to make the improvements with money borrowed from the city, the repayment of which can be scattered over a period of years and collected as are taxes."

The idea that capital can exist, pursue its way and prosper without the coöperation of that labor, which called it into being, indeed, fondled and

nursed it into adolescence and full grown maturity. Too often has capital been proved to be a veritable Gargantua of insatiable appetite slowly immolating his victims; while my studies have led me to conclude that it will be impossible to prevent international wars from being called into being at the will of the Armament Trust and its parasitic underlings and that ordinary commercial business will not be conducted either morally or with due consideration for the rights of the weak if the principle enunciated in America of "taking all that the traffic can bear" be accepted as an economic necessity. Never, indeed, can the simplest yet most difficult of all commandments, "Do unto others as ye would that others do unto you," become in any degree obeyed nor the ills of society be greatly ameliorated, much less removed, until *land*, *labor* and *capital* be bound together in a bond of love, greater than any sworn oath to ever love, honor and obey one another: Then and then only, shall be fulfilled, the highest law, the law of Christ!

THE USE OF A MICROSCOPE IN THE DIAGNOSIS OF PELLAGRA.

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It is very rare that one finds a typical case of pellagra. It is a disease of many symptoms and of many variations. It may be placed in the sphere of dermatology, neurology and gastrology, but still it is a general disease. It spreads and is not considered contagious, but infectious it must be. It has the latitude of amœbic dysentery and hookworm disease and yet the treatments for these diseases have little effect. Is the microscope of value in the diagnosis of the disease?

For two and a half years I have been more or less interested in intestinal bacteria, but the intestinal bacterial and protozoal flora include so many species I have looked with doubt on the pathogenicity of any of them until it is definitely proven. In addition to the colon group of bacteria which are found in feces of pellagrins, I have, for many months, noticed with much interest a bacillus which may be the cause of pellagra.

This bacillus is much longer and more sharpened at the ends than those of the colon group. It is motile, ærobic, sporogenous, stains readily and grows on culture media. When spore formation is about to occur in the bacillus a point of cloudiness or an area of bright refraction appears in the protoplasm and the cell generally elongates. The spore enlarges, the cell membrane bursts and the young bacillus emerges through the opening. At first the bacillus is very active and takes the form of a spirillum for a few seconds. It then elongates and becomes less and less motile. Later it may appear rod-shaped, slightly curved or as a long undulating thread.

Animal inoculation experiments have not been very successful. Mild intestinal affection was produced in a cat and the bacillus was again observed on microscopic examination. In a man pellagra has been induced by transference of cultures of the bacilli. Pharyngitis and bronchitis developed within three days and was soon followed by definite intestinal and nervous symptoms of pellagra. The microscope revealed the organism in its many forms.

Of the fifty-three cases of pellagra examined, the bacilli were seen in great numbers. Seventeen of these have been examined many times and the organism was present in every instance for many months. The organism has not been seen on examination of healthy individuals and those suffering from other diseases.

The bacillus in culture has been tested by many drugs. A one per cent. solution of ichthyol seemed to have a most decided effect. I have partially tested this drug on fifteen cases of pellagra within the last six weeks. One or two five-grain pills three times a day for eight or ten days apparently

cures the average case. In two instances I have known forty grains of the drug to relieve all digestive and nervous symptoms. The more advanced cases require longer treatment. In so short a time it is impossible to test the drug thoroughly but it seems to act as a specific. With the symptoms, the bacilli disappear.

The organisms in all stages of the disease are present in enormous numbers in the contents of the large intestine. I believe it is usually confined to this situation. Its deleterious effects upon the body appear to be largely due to the production of toxic substances which in addition to serious intestinal irritation or lesion may on absorption incite those systemic disturbances which characterize the toxæmia. The disease must be spread by direct contact with the excrement of those afflicted with the malady or by flies conveying the parasites to articles of food.

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CHEMICAL DISINFECTION OF EXCRETA.

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Read before the Laboratory Section, American Public Health Association, Jacksonville, Fla., December 1, 1914.

The objections of the privy system which now prevails in rural districts, and too often, be it said, in cities, are recognized by all. The evil consequences that may follow the present methods of disposal of "night soil," where there is no proper sewerage system, are apparent to physicians and sanitarians and, I am glad to say, to a great number of people in general.

Yet the privy which contaminates the air and soil, pollutes the water, poisons wells and causes disease and death, has been generally accepted as a necessary evil, even by people accustomed to the comforts and privacy of a water closet in a city, and who desire to have an equivalent in the country, and efforts to provide a substitute have been considered of little avail in many communities. Even health officials charged with the safeguarding of the lives of the people have, in many instances, deemed it sufficient to direct that the privy be not located within fifty feet of a well or spring, and that there be a frequent removal of excreta.

In recent years, however, there has been a change of sentiment on the part of many people, and state and local health authorities have been beset with inquiries as to substitutes for the present death-dealing privy vault. This, no doubt, has been brought about, to a considerable extent, by the dissemination of information on the septic tank process of purification of sewerage. Still, there is good reason to believe that the campaign against the typhoid fly conducted with such vigor within the past decade, and the education on prevention of hookworm disease, have had much to do with the awakening of the people.

Two types of sanitary privies are generally recognized, namely, the so-called "dry system" and the so-called "wet system."

The objections of the present day, "wet and dry system," however, have been so ably described by Doctors Lumsden, Roberts and Stiles, in a Bulletin of the United States Public Health Service, issued in February, 1911, that I will not enter into the details here, but will simply explain to you the results of an investigation extended over the last twelve months with a type of sanitary closet which is marketed commercially and which will decrease the disadvantages, and at the same time increase the advantages connected with the older type of outhouse.

The apparatus is a well-made and handsomely designed cabinet which conceals a strongly built tank of twenty-four gauge steel, heavily galvanized.

The tank should contain about three inches of water to which is added a germicide specially adopted for this purpose and being guaranteed to possess a Hygienic Laboratory Phenol Coefficient of 9 to 10.

The covers of these closets are so fitted as to make them practically air-tight. The lower member of the lid overlaps on the side of the cabinet, and the upper member of the lid is fitted with a rubber cushion projection, which, when closed, fits snugly into the shaped seat-hole.

The air enters into the cabinet at the bottom through air intakes, circulates around the containing tank and escapes, carrying with it every vestige of odor through a four-inch vent pipe which passes on to the chimney.

The practical working of this closet is most simple and free from objectionable odors and the emptying of the tank can be done intermittently by means of a pump attachment or by continuous flow if found desirable. The closet can also be provided with an automatic mixing arrangement so that the contents are thoroughly mixed each time the closet is used or with an automatic appliance discharging a new supply of disinfectant, approximately one quarter ounce of a 10 per cent. solution of the disinfecting fluid mentioned above, being added each time the closet is used.

In the following charts the results of the germicidal action of the disinfectant used are indicated for a closet with the automatic attachment and for a closet without the automatic attachment. Each experiment was carried out at the same time on two closets, one called "Test Closet" and the other "Control Closet," each closet being used by a squad of six men each for a period of from three to four weeks. In the "Control Closet" only water was used, while the "Test Closet" contained at the beginning of the experiment a 2 per cent. solution of the disinfecting fluid mentioned above equal in volume to the water in the "Control Closet."

Chart No. 1 represents the results on "Test and Control Closets" with automatic attachments such as mixer, supply tank, and discharging pump and was in use from June 15 to July 21, each closet being used by a squad of the same six men during the whole period. Samples were taken from the closets on June 25, July 2 and July 21, representing seven, fourteen and twenty-eight days' actual use, respectively (Saturday afternoons and Sundays, being holidays, are not counted). On each of these dates two samples were taken from each closet, one from the inside and one from the pump. Care was taken throughout to treat each sample in exactly the same way so that the results might be truly comparable.

During the period of the test the following deposits were made:

Test Closet.....excreta, 67; urine, 170.
Control Closet.....excreta, 117; urine, 234.

It should be noted that at no time during the test did the test closet contain an appreciable amount of solid material, only a few pieces of formed

stools being present at any time. On the other hand, the control closet contained at all times during the test a large amount of solid material consisting of large well-formed stools and paper. This confirms the fact that the disinfecting fluid has a decided disintegrating action upon fecal material.

BACTERIOLOGICAL EXAMINATION.

Closet.	Sample.	Date.	Colonies per cc.				B. coli per cc.
			Infusion Agar 48 hrs. at 37°C.	Infusion Agar 5 days at 20°C.	Litmus 48 hrs.	Lactose Agar at 37°C.	
					Total.	Red.	
Test	No. 1 Inside	6–23–14	160	200	160	0	0
Test	No. 2 Pump	6–23–14	140	200	110	0	0
Test	No. 5 Inside	7– 2–14	90	120	100	0	0
Test	No. 6 Pump	7– 2–14	80	100	100	0	0
Test	No. 10 Inside	7–21–14	400	160	180	0	0
Test	No. 10 Pump	7–21–14	300	120	160	0	0
C'trol	No. 3 Inside	6–23–14	92,000,000	74,000,000	81,000,000	466,000,000	18,000,000
C'trol	No. 3 Pump	6–23–14	71,000,000	53,000,000	75,000,000	41,000,000	19,000,000
C'trol	No. 7 Inside	7– 2–14	130,000,000	120,000,000	190,000,000	120,000,000	90,000,000
C'trol	No. 8 Pump	7– 2–14	190,000,000	160,000,000	110,000,000	90,000,000	60,000,000
C'trol	No. 11 Inside	7–21–14	11,000,000	22,000,000	9,000,000	6,000,000	4,000,000
C'trol	No. 12 Pump	7–21–14	8,000,000	16,000,000	6,000,000	4,000,000	2,500,000

CHART No. 1.

The results of the test are entirely satisfactory. The fluid contents of the test closet might have been disposed of at any time in any manner esthetically acceptable, and would not possibly become a menace to health.

Chart No. 2 represents Test and Control Closet of plain simple construction, no provision being used for the automatic mixing of the contents or for the addition of new supplies of disinfectant. Each closet was used by a squad of the same six men from August 24 until September 25 when samples were taken from each closet, both before and after thorough mixing. The closets were then allowed to stand without use until the morning of September 28 when the contents were again sampled. During the period of the test the following deposits were made in the closets:

Test Closet.....excreta, 86; urine, 210.
Control Closet.....excreta, 71; urine, 273.

It will be noted that in each case the unmixed samples from the test closet show very satisfactory results. The results on the mixed sample

BACTERIOLOGICAL EXAMINATION.

Closet.	Sample.	Date.	Colonies per cc.				B. coli per cc.
			Agar 48 hrs. at 37° C.	Agar 5 days at 20° C.	Litmus 48 hrs.	Lactose Agar at 37° C.	
					Total.	Red.	
Test	Not mixed	9–25–14	1,500	3,000	1,700	1,700	6
Test	Mixed	9–25–14	32,000	22,000	42,000	42,000	5,600
Test	Not mixed	9–28–14	600	600	550	550	0
Test	Mixed	9–28–14	450	500	390	390	0
C'trol	Not Mixed	9–25–14	16,000,000	18,000,000	10,000,000	2,000,000	1,200,000
C'trol	Mixed	9–25–14	154,000,000	100,000,000	131,000,000	16,000,000	8,000,000
C'trol	Not mixed	9–28–14	140,000,000	170,000,000	154,000,000	54,000,000	42,000,000
C'trol	Mixed	9–28–14	160,000,000	150,000,000	131,000,000	37,000,000	28,000,000

CHART No. 2.

taken from the test closet on September 25 are not as satisfactory as might be desired. However, when the contents were allowed to stand for seventy-two hours, the bacterial counts, both on the mixed and unmixed samples, show a very complete and satisfactory degree of disinfection, such as would render the contents entirely non-injurious to health.

Chart No. 3 represents Test and Control Closet in use from September 29 to October 27 in which was used Commercial Formalin as a disinfectant.

The details of this test were precisely the same as in those mentioned above. The closets were of simple construction, no special attachments of any kind being provided. At the beginning of this experiment, one closet contained six gallons of a 1 per cent. solution of Commercial Formalin; the other closet a like column of a 2 per cent. solution of Commercial Formalin. As a control closet, containing water only, had been used so often in previous tests, it was not considered necessary to include such a closet in this experiment.

Each closet was used by a squad of six men and, during the period of the test, the following deposits were made:

Closet No. 1, 1 per cent. Formalin.....excreta, 88; urine, 274.
Closet No. 2, 2 per cent. Formalin.....excreta, 86; urine, 343.

Samples were collected from the closets on October 8, October 19, and October 27, representing one, two and three weeks of actual use respectively. In every instance two samples were taken from each closet, one before and one after thorough mixing. The bacteriological results are shown in the following tabulation:

BACTERIOLOGICAL RESULTS.

Closet.	Sample.	Date.	Colonies per cc.				B. coli per cc.
			Agar 48 hrs. at 37° C.	Agar 5 days at 20° C.	Litmus 48 hrs.	Lactose Agar at 37° C.	
					Total.	Red.	
No. 1							
Formalin	Not mixed	10– 8–14	30,000	30,000	31,000	21,000	16,000
Formalin	Mixed	10– 8–14	1,510,000	690,000	700,000	600,000	380,000
Formalin	Not mixed	10–19–14	10,000	12,000	14,000	9,000	6,000
Formalin	Mixed	10–19–14	1,800,000	1,200,000	1,300,000	890,000	580,000
Formalin	Not mixed	10–27–14	1,340,000	2,600,000	1,900,000	980,000	620,000
Formalin	Mixed	10–27–14	62,000,000	59,000,000	48,000,000	27,000,000	19,000,000
No. 2							
Formalin	Not mixed	10– 8–14	5,000	6,000	1,400	0	0
Formalin	Mixed	10– 8–14	127,000	99,000	170,000	120,000	65,000
Formalin	Not mixed	10–19–14	2,000	3,400	1,800	0	0
Formalin	Mixed	10–19–14	230,000	390,000	280,000	190,000	96,000
Formalin	Not mixed	10–27–14	12,000,000	10,000,000	9,000,000	8,000,000	4,500,000
Formalin	Mixed	10–27–14	92,000,000	112,000,000	68,000,000	47,000,000	29,000,000

CHART No. 3.

The results with the 1 per cent. solution of Formalin show in no case a satisfactory degree of disinfection. With the 2 per cent. solution the results with the unmixed samples are fairly good for the first two weeks, while the reverse is true with the mixed samples, showing that the Formalin does not have the power to penetrate masses of fecal material. The samples for the third week show results nearly, if not fully as bad as might be expected with a closet in which water only had been used. This would indicate that the Formalin solution is quickly exhausted.

It is worthy of note that from the microscopic appearance of the contents of these closets a solution of Formalin has a much less disintegrating action upon fecal material than water alone. This view is also borne out by the bacteriological results.

In conclusion it may be said, that in the strength used and under the conditions of this test Formalin can not be considered as a safe and satisfactory disinfecting agent for fecal material.

It might be of interest to mention that further work will be continued to investigate the action of the disinfection of hookworm larvæ and eggs and if possible on other organisms of parasitic origin, by means of the same type of sanitary closet and disinfectant as described above.

REPORT OF THE COMMITTEE ON STANDARD METHODS FOR BACTERIAL MILK ANALYSIS.

Presented to the Laboratory Section, American Public Health Association, Jacksonville, Fla., December 2, 1914.

To the Officers and Members of the Laboratory Section of the American Public Health Association.

Your committee, to which was referred the revision of standard laboratory methods for the examination of milk, beg to report that they have made a canvass of the situation and in view of certain extensive and important experiments which are now under way they deem it unwise at the present time to recommend any decided changes in the report of the former committee, but advise that this be retained until the completion of the abovementioned experiments, with the following exceptions:

It is recommended that pending the formulation of a more complete report the following methods be adopted as a working basis:

First: The standard methods at present do not specify whether the counting of plates should be done with the naked eye or the lens. It is proposed that the counting should be done with a lens of $3\frac{1}{2}$ diameters magnification.*

Second: The standard methods specify 1 per cent. of agar, not saying whether dried or ordinary agar is meant. It is proposed to substitute for this 1.2 per cent. dry agar or 1.5 per cent. ordinary agar.

Third: The use of beef extract 0.5 per cent. instead of infusion of fresh meat. Liebig's extract shall be used when possible.

Fourth: The standard methods fix the reaction at 1.5+. It is proposed to reduce this to 1 in order to make the reaction of culture media conform more closely to the normal reaction of milk.

Fifth: All plates are to be incubated at 37° C. and counted at the end of 48 hours.

The committee asks for a continuance.

Respectfully submitted,

MAZÝCK P. RAVENEL,
Chairman.

Agreed to by
H. W. CONN.
W. H. PARK
B. H. STONE.
WM. ROYAL STOKES.

* The *Engraver's Lens No. 146*, made by Bausch & Lomb, fills the requirements and is a convenient lens for the purpose.

BOOK REVIEWS.

A Manual of Practical Hygiene. *For Students, Physicians and Health Officers. By Charles Harrington, M. D., late Professor of Hygiene in the Medical School of Harvard University. Fifth edition, revised and enlarged by Mark W. Richardson, M. D., Secretary to the State Board of Health of Massachusetts, in collaboration with the following officials connected with the Massachusetts State Board of Health: W. H. Clark, Chief Chemist; N. H. Goodnough, Chief Engineer; William C. Hanson, M. D., Assistant to the Secretary; Hermann C. Lythgoe, Chief Analyst of Food and Drug Department, and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. Octavo, 933 pages, 125 engravings and 24 plates on colors and monochrome. Cloth, $5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.*

In the 900 pages of the Fifth Edition of Harrington's "Practical Hygiene," carefully edited by Dr. M. W. Richardson, will be found set forth much of the most up-to-date information on the subject of Sanitary Science. As stated in the preface, the subject "has now become so large that it cannot be adequately encompassed by any single writer," and properly the editor has associated with him expert specialists, who have prepared different chapters.

The impression gained from a perusal of the work is that it would perhaps have been better called a "Text-Book on Sanitary Science," since many of the subjects are treated rather from the standpoint of the student than of the health officer. To take but one or two examples, the subject of meat inspection may be referred to. Some 270 pages in Chapter I are devoted to foods and yet only two pages are given to "Meat Inspection." When this is compared with Chapter V of the work of Endelmann of Dresden in which "Organization and Methods of Procedure of the Inspection Force" dealing with the details of ante-mortem and post-mortem inspection are given in detail we realize how lacking the chapter is in just the information which an officer of health is looking for. What to look for and how to look for it are especially what the health officer seeks for in a work on Hygiene. To take but one other example in the section on Food Preservation, only half a page is devoted to conservation by cold, although almost every state and the Federal Government have or are passing laws regulating a business in which millions of dollars are invested and which has much more to do with the public health than parasitic diseases to which a number of pages are devoted.

Chapter II is devoted to "Air" and gives the usual chemistry and physics of air. Considerable space is given to aqueous vapor in air; but the part it plays in the hygiene of dwellings is dealt with under Ventilation and Heating. We could have wished for something much more extended as a definite outline of modern methods of supplying the much needed moisture to dwellings in northern climates where with hot-air and hot-water furnaces in close-shut houses the relative humidity often scarcely exceeds 25 per cent. Accurate illustrations might surely have been given of some such apparatus, when some twenty pages are given up largely to different diagrams of plumbing fixtures, illustrating the same applied principles.

Chapter V deals with "Disposal of Sewage." It is an admirable outline of the subject and deserves in keeping with its importance more space than has been given it, if comparison be made with other overgrown chapters. What is remarkable, in view of the fact that in America by far the larger number of people live in villages and country places where no sewerage systems exist, is that one sentence alone refers to any simple method for disposing of waterborne sewage in unsewered districts, and we are left, as our sole resource, only the ancient cesspool. In view of the needs of private houses and institutions, where windmills and other engines supply adequate water for a plumb-

ing system, surely it would have added to the value of the chapter if an outline of the construction and management of a small septic tank with intermittent discharge and sub-surface tiles had been given.

Chapter VI is another rather disappointing chapter. There is no one subject which gives the health department of a city more trouble and none whose importance is more generally recognized than the disposal of refuse, yet it receives only four pages while plumbing receives nearly forty. The health officer seeking for information and guidance does not get from the chapter such practical aid as he is entitled to in a work on practical hygiene.

Having said so much in criticism of the work as being in our view ill-balanced in the space devoted to different subjects, we turn to such a comprehensive and admirable chapter as that on "Water." It is a compendium rather than a chapter. The statements in the section dealing with mineral matters as producing goitre must, however, in view of recent studies, be considered antiquated and apocryphal. The sections dealing with the examination of water are very complete.

Chapter X deals with occupations and has much interesting information in it. It is certain, however, that the working factory inspector will sigh for details of practical methods for carrying out his work, such as those given in the chapter on "Water."

Chapter XI on "Medical Inspection of Schools" is admirable and in every respect up to date.

Chapter XII deals with "Military Hygiene" and at the present time is full of interest.

Chapter XV deals with "Infection, Susceptibility and Immunity." The student of preventive medicine or the practising medical officer cannot become too thoroughly saturated with these subjects, since they deal with principles underlying the phenomena brought about under the many insanitary conditions referred to in other chapters. In the work of vaccination and immunization as against smallpox and typhoid the medical officer must be in every way *en rapport* with the most recent teachings of medical science if he is to take early action to suppress conditions which may rapidly develop into serious outbreaks.

Chapter XVI dealing with "Insects and Human Disease" is timely and adequate.

Chapters XVII to XX dealing with "Quarantine, Control of Outbreaks of Communicable Diseases, Vital Statistics and Disposal of the Dead" are concise and up to date. The work as a whole has material of great value in it; but like most works dealing with so wide a subject must necessarily be judged differently by reviewers in the degree that they look upon matters from diverging points of view—whether from the academic or from the practical.

P. H. Bryce.

Food Products. *By Henry C. Sherman, Ph. D., Professor of Food Chemistry, Columbia University. Macmillan Co., New York. $2.25.*

The increased cost of living has aroused a full cry for more light on the fundamental problem of food supply. This extensive and complete work of Dr. Sherman is the product of keen observation, scientific research, and lucid interpretation of a mass of data which has rapidly accumulated with the progressive changes in methods of production, manufacture and sanitary control of foods. The laboratories of the United States Government and of the universities are yielding rich store of chemical and nutritional knowledge which is here brought up to date, well organized and interpreted in scientific terms. Students of the universities, physicians, social welfare workers, dietetians and homemakers will find here a thorough survey of the constituents and functions of foods, food legislation, the complete story of milk and its products, eggs, meat, poultry, fish, grain products, vegetables, edible fats and oils, sugars, and food adjuncts which will make the selection, care and utilization of food products an act of knowledge instead of, as so frequently happens, an act of faith. The topical bibliography will open a mine of information to those whose whetted interest would carry them on. The publication of this valuable book at this psychological hour is of basic importance to every student of social economy.

Laura A. Cauble.

Vivisection and Medical Progress. *Animal Experimentation and Medical Progress. By William Williams Keene, M. D., LL. D. Houghton Mifflin Co., New York and Boston.*

Few physicians have had the opportunity to witness the development of modern antiseptic surgery and animal experimentation which has been afforded to Dr. William Williams Keene, Professor Emeritus of Surgery of the Jefferson Medical College in Philadelphia. Beginning his career in 1862, during the troublesome times of the Civil War, he has followed and employed the methods of technique of Lister, Pasteur, Koch and the more modern school of surgeons and pathologists and has watched with keen and scientific interest the development of comparatively safe surgery and the wonders of animal experimentation in relation to medical research.

His new book entitled "Animal Experimentation and Medical Progress" is practically an autobiography of his own experience in this field, and is in itself, probably the most conclusive arraignment of the ridiculous position and the talks of the anti-vivisectionists. While the book consists practically of a number of papers which Doctor Keene has published from time to time in various medical journals, it is in a real sense a unit. So concisely and clearly is the book written that the layman who knows little or nothing about the technique of surgery and modern laboratory methods can follow Doctor Keene with great interest. Several of the chapters deal specifically with the anti-vivisection campaign and here the fact that Doctor Keene himself has been the butt of more than one attack by the fanatics of this campaign, makes his statement doubly valuable for others who are having similar experiences. The titles of a few of the chapters indicate the scope of the work. Some of these are "The Progress of Surgery as Influenced by Vivisection"; "Modern Antiseptic Surgery and the Rôle of Experiment in Its Discovery and Development"; "Our Recent Debts to Vivisection"; and "Recent Progress in Surgery."

Dr. Charles W. Eliot, President Emeritus of Harvard University, has written the introduction to the book.

Worry and Nervousness or The Science of Self Mastery. *By William S. Sadler, M. D. Chicago, A. C. McClurg & Co., 1914. 535 pages. Price, $1.50.*

This book is designed for the general reader. Considering this fact one is at first disposed to object to its size and to question whether a more concise treatise would not be more widely useful. Examination shows that the extent of the work is not due to diffuseness of style but to inclusiveness in subject-matter. The volume is almost encyclopædic. It is, nevertheless, well-organized and readable. There are two parts, the first devoted to causes and manifestations, the second to the treatment of nervous disorders.

The presentation of the material, descriptive and didactic, is clear and sane. The author shows exceptional poise and discretion in defining the value and the limitations of psychotherapy. His great interest in blood pressure variations is evidenced at frequent intervals. The illustrations can scarcely be said to add to the substantial worth of the book. If one were to make them the sole basis of judgment one would infer that the writer was offering 500 pages of Sunday journalism and injustice would be done to an excellent manual.

Percy G. Stiles.

HEALTH DEPARTMENT REPORTS AND NOTES.

REPORTS.

Brockton, Massachusetts.

The thirty-second annual report of the Board of Health of Brockton measures up well with the reports of previous years and shows several improvements. The death-rate for 1913 is given as 10.88 (the lowest recorded for the past twenty years), with the population estimated at 62,500. The financial statement shows an expenditure of $14,776 for salaries and general expenses, $13,831 for refuse collection and removal, and $12,690 for contagious diseases.

Epidemics of infantile paralysis, diphtheria and scarlet fever are noted. Nothing was discovered of significance in the twenty-one cases of infantile paralysis to indicate the source of the disease. No secondary cases were noted. The diphtheria epidemic was apparently caused by missed cases and carriers. Thirty carriers were discovered in the schools and treated in the same manner as true cases as far as exclusion from school and quarantine were concerned. A tuberculosis nurse was added to the staff; $9,066 was expended for the care of tuberculosis cases, the larger part of this being expended in the cost of cases sent to sanatoria.

One hundred and fifty-four deaths under one year occurred, giving an infant mortality rate of 89 per 1,000 births reported. The board is planning to take over the work of the Milk and Baby Hygiene Association. Medical inspection of schools is carried on very successfully. The city laboratory continues under Mr. George E. Bolling to do yeoman service; 6,527 specimens were examined either chemically or bacteriologically; 89 per cent. of milk wagon samples had less than 500,000 bacteria per cc., the bacterial limit of the board.

The statistical tables in the report are excellent. Many of the forms recommended by the Massachusetts Association of Boards of Health have been adopted and demonstrate their value. It is regrettable that more Massachusetts cities and towns do not follow Brockton's example. The report on the whole is indicative of good work and the initiation of new activities each year shows that the work is likewise progressive.

St. Paul, Minnesota.

Dr. Howard Lankester, Commissioner of Health of St. Paul, presents for 1913 his customary excellent report. Conditions along sanitary lines in St. Paul are open to improvement, as Dr. Lankester frankly admits, but it is a fact that they are ahead of many cities of similar size, especially in the Middle West. The tone of the reports of the commissioner and his staff shows a progressive spirit and the contents of the reports indicates good results.

St. Paul is a city with an estimated population of 255,000 and has, in general, naturally good sanitary conditions. The low death rate, 10.01 per thousand population, is probably due rather to these natural assets and to the efficiency of the health department than to any appreciation on the part of the city of the importance of public health work. This conclusion is based on the fact that only forty cents per capita population is expended through the health department and of this only sixteen cents is expended in strict health work, the remainder going for garbage collection and the maintenance of public baths.

The contagious disease situation as reported by Assistant Commissioner Cook is good but is in a precarious condition owing to the lack of a sufficient number of medical inspectors, especially in the schools. One school physician and six nurses are obliged to supervise 30,000 school children and in

consequence epidemics of measles and scarlet fever, which start in the schools, run their course almost unchecked, since mild or incipient cases are not recognized and excluded until they have spread the infection. Serious epidemics of diphtheria and typhoid were promptly traced to their source (dairies) and suppressed. Free anti-typhoid inoculations were given by the department to those exposed with perfect results.

The milk situation has been materially improved by the passage of an ordinance requiring the bottling of all market milk. The city can require the inspection of only those cattle kept within the city limits and anyone may obtain a license to sell milk in the city by paying a dollar to the state without any inspection whatever.

The work of the tuberculosis division is carried on by five nurses who make frequent calls to all cases reported. Owing to insufficient legislation, the reports of cases are not complete, but it is estimated that more than half are known and indexed by the division.

Reports of vital statistics, finance, and of the other divisions are neat and well prepared. It is to be hoped that the new board which succeeds the old, under the new charter of the city, will do as well.

DEPARTMENT NOTES.

Better Meat Supply in Indiana.

The *Monthly Bulletin* of the Indiana State Board of Health for June, 1914, gives an account of the effort on the part of the Board to secure more sanitary slaughterhouses and a better inspection of the meat supply than is at present afforded the residents of the smaller cities of the state.

Two letters have been sent out to health officers and mayors. The first of these calls attention to the need for improvement and suggests that the health officer take up the matter with his mayor. The second letter, to the mayor, is the more important. It states the results of many investigations and inspections and quotes Circular 185 of the Bureau of Animal Industry as follows:

"1. A well-regulated system of slaughterhouses is as necessary to the *public health* as is a well-regulated system of schools to the *public education*.

"2. Every slaughterhouse is a center of disease for the surrounding country, spreading trichinosis, echinococcus disease, gid, wireworm, and other troubles caused by animal parasites, and tuberculosis, hog cholera, swine plague, and other bacterial diseases.

"3. The important factors concerned in spreading these diseases are offal feeding, drainage, rats and dogs.

"4. These diseases may be greatly held in check and in some cases entirely eradicated in two ways: First, by a reduction in the number of premises on which slaughtering is allowed, on which account *it is urged as all important that there be a segregation of slaughterhouses, so that all the butchers of any given town will be compelled to do all their killing in a common inclosed and restricted area.* Second, by regulating the factors concerned in spreading the disease: (a) Offal feeding should be abolished; (b) drainage should be improved; (c) rats should be destroyed; and, (d) dogs should be excluded from slaughterhouses.

"5. The appointment on every local board of health of a competent veterinarian, whose duty it shall be to control the class of meat placed upon the block. *All meats should be inspected at the time of slaughter, thus securing for the local consumer the same guaranty that the National Government provides for the foreign consumer and for interstate trade.*"

The State Board finally offers such assistance and coöperation to all cities in the development of any plans they think desirable.

Compulsory Vaccination.

The city of Louisville, Kentucky, has adopted and will enforce rigid vaccination

laws during the coming year in an effort to reduce the high smallpox morbidity which obtained during the year just passed. The following quotation from the bulletin of the city health department tells the story:

"Last year nearly seven hundred cases of smallpox were treated at our Eruptive Hospital. An epidemic of smallpox in any community in this day of preventive medicine reflects great discredit on the city and its government.

"To prevent a similar outbreak this year, the State Board of Health is coöperating with the City Health Department and the state and city laws of compulsory vaccination will be enforced.

"All those persons who refuse to obey the law will be served with a warrant and presented in court. The fine is from $5 to $50."

Reporting Diseases.

Dr. B. F. Howard, Director of the California State Bureau of Tuberculosis, has made very encouraging progress in securing the reporting of this disease before death. In 1914 the morbidity reports have for the first time exceeded the mortality reports and while the good work has not gone as far as could be desired, still the state is getting a much better idea of the magnitude of its tuberculosis problem. The following table shows the change:

Tuberculosis.

September.	Reported at death.	Reported before death.
1912.....	316	129
1913.....	405	204
1914.....	360	510

Patent Medicines.

The following extracts from the Sanitary regulations of Brazil, quoted in the weekly bulletin of the New York City Department of Health, show how far the Government of Brazil is ahead of the United States or any local authority here, in the matter of regulating the manufacture and sale of secret nostrums:

"The advertisement and sale of secret remedies, as well as the sale of drugs and medical preparations in establishments which are not duly licensed or upon the streets or sidewalks, are expressly prohibited. *Those preparations are considered secret remedies which are laboratory preparations made according to a formula not included in pharmacopœias of general acceptance and those not licensed by the Department of Public Health.*

"Remedies of ordinary and inoffensive use, to be found in lists approved by the Government, and laboratory preparations licensed by the Public Health Department, are excepted; and no other medicine or preparation can be sold by a pharmacist or furnished to any one whosoever without a prescription from a duly authorized physician.

"Every pharmacist who wishes to sell laboratory preparations invented by others, under a special name, must indicate on the respective labels the pharmacopœia in which the formulas of such preparations are to be found after obtaining the necessary authorization from *the Department of Public Health, which will pass upon all statements which are to be made or can be made in the respective labels or advertisements; all preparations whose labels do not contain the express authorization referred to are considered secret remedies, subjecting the pharmacists to the penalties fixed in these regulations.*

"The inventor of any antiseptic preparation, remedy or perfume, wishing to offer it for sale, shall make application for a license from the Department of Public Health, presenting therein a report in which he declares the composition of the product, the manner of manufacturing and applying it, and the circumstances under which its use can be beneficial. This report can be placed in a sealed envelope which will be opened by the director general of the Department, who will report upon it to the pharmacist, after which it will again be sealed and deposited in the archives of the Department.

"With the application the inventor will present a certain quantity of the product, which shall be forwarded to the National Laboratory of Analyses for the purpose of securing the report of the latter respecting it, the director general being authorized, if

it is deemed advisable, to order experiments to be made in public hospital or school establishments, after the chemical composition of the product is known.

"*The director general shall give confidentially to the chief of the laboratory the formula of the composition, when it is to be analyzed.*

"When the license has been obtained, the inventor can place the product upon sale, with the declaration that such sale has been authorized by the Department of Public Health; but it is *absolutely prohibited to advertise in newspapers, or otherwise, qualities of a therapeutic nature which have not been established or admitted by the Department.*"

Isolating Tuberculosis.

The Board of Health of Duluth, Minn., passed the following drastic regulations:

"WHEREAS, tuberculosis is now recognized as a communicable disease,

"*Therefore*, Be it resolved that a case of open tuberculosis must be isolated either in a sanatorium or at home;

"*Resolved*, that all early cases shall be so cared for as to prevent the disease from reaching a state that will become dangerous to others, if possible."

A competent and experienced man has been placed in charge of the new tuberculous division and measures are being rapidly taken to provide all the accommodations which the task outlined in the above simple resolutions entails.

Educational Work of the New York City Health Department.

A program of educational work recently undertaken by the Department of Health of the City of New York promises great things. Though familiarity with advances in medical and sanitary science is necessary to their highest efficiency, the medical and lay employees of health departments find it difficult to keep up with the rapid progress along such lines. To overcome this difficulty the New York City Health Department has provided four courses of lectures, one for its medical inspectors and other physician employees, one for its lay inspectors (food and sanitary), one for its hospital nurses, and one for its field nurses. Attendance is not compulsory, but employees are expected to be prepared to pass an examination, at the termination of the course, on the subjects discussed. All the courses except that for hospital nurses (which is given in the various hospitals for contagious diseases) are open to the public. The health department further offers to provide lectures on any of the subjects in the course on application from organizations. The plan and scope of this work are so good that the results cannot fail to be a great public benefit.

Journal American Medical Association, November 7, 1914.

A Jail Sentence for Selling Adulterated Milk.

Repeatedly prosecuted by the Department of Health for violation of its milk regulations, and in spite of this continuing his illegal practices, a Brooklyn dealer was sentenced in the Court of Special Sessions, on November 12, to pay a fine of $250 for selling milk improperly labeled and to serve three months in the City Prison for selling adulterated milk.

New York Medical Journal, November 28.

Etiology of Pellagra.

Meritorious at least of thorough investigation is the work and thesis recently announced by two Italians, Alessandrini and Scala, which tells of the results of investigations which have been going on since 1909 on the etiology and treatment of pellagra. An editorial in a recent number of the *New York Medical Journal* (October 3) tells of the conclusions:

"The work led them (the investigators) to two fundamental conclusions: 1, Pellagra does not depend absolutely upon the eating of maize; 2, it is a disease clearly localized and limited to zones where the drinking water comes in contact, more or less exclusively, with clay soils. The fact that pellagra has been eliminated in pellagrous districts by the substitution of drinking water from out-

side, led the authors to suspect water as the carrier of the infection.

"On account of the analogy between pellagra and certain diseases due to animal parasites, especially Filariidæ, which present the periodical spring and summer exacerbations with remissions in the winter, the writers at first supposed that pellagra might be due to a parasite of this class. Some experiments on monkeys, however, were considered conclusive in ruling out animal parasites; bacteriological examination of the water in infected districts resulted negatively; there remained, therefore, under suspicion, only the organic and inorganic substances suspended or dissolved in the water. Various reasons led to the exclusion of organic material. It had never before been suspected that the common mineral substances, in potable water at least, might provoke such disturbances. The elimination of all other factors and a careful study of the mineral content of the water led the writers to suspect the colloidal silicic acid."

Alessandrini and Scala believe that they have proved by animal experimentation that pellagra is merely a mineral acidosis and have deduced that the rational treatment for the disease would be the administration of an alkali. They simply inject into the patient trisodium citrate which upon oxidation sets free sodium carbonate and neutralizes, according to their theory, the silicic acid present. The experimental results of such treatment follow:

"The first experiment was made on a dog, which showed improvement in eight days. It received daily intramuscular injections of one cc. of a five per cent. solution of trisodium citrate; the injections of silicic acid which had first caused symptoms were continued. Pellagrous persons were then treated by administering intramuscularly one cc. of a ten per cent. solution of trisodium citrate, usually at twenty-four hour intervals. The results in ten cases are reported, improvement in every case being noted within a very short time. This treatment is so simple and harmless that it merits a thorough trial. The writers feel that the prophylaxis of pellagra depends merely upon attention to the water supply."

Knowledge of Demography Necessary for Officers of the Service Public Health.

Surgeon-General Blue, United States Public Health Service, has recently issued a set of questions intended to illustrate the kind of examination in vital statistics submitted to those who intend to enter the United States Public Health Service. These questions cover a field of vital statistics dealing with marriage reports, birth records and statistics, morbidity reports and statistics, death registration and statistics, infant mortality and life tables. This step indicates a growing appreciation of vital statistics and progress in preparing them.

New York Medical Journal.

A Bacillus Carrier.

The latest report of a typhoid bacillus carrier comes from Hartford, Conn., and is on the authority of Dr. C. P. Botsford, Health Officer of that city. A man who had had typhoid in November, 1913, was employed on the farm of a dairyman and helped occasionally with the milking. Twelve cases of typhoid appeared on the route supplied with milk from this dairy, early in September, 1914. In the early part of November thirty-four cases developed suddenly on the route of another milkman and it was found that the same man, who was employed on the first dairy shortly before the first outbreak, was now a milker where the milk of the second dairy was produced. Examination of the man's feces proved beyond doubt that he was a carrier and was the cause of both epidemics.

Overcrowded Cars.

The question as to the overcrowding of cars as a public health problem of vital importance has been brought up recently in New York City when Commissioner Goldwater addressed the Public Service Commission, inquiring whether the subway management was withdrawing cars from the subway tracks during the day between rush hours to such an extent that the cars were unnecessarily crowded. If the companies

were guilty of such practice he said they were "culpable of a serious offence."

Commissioner M. R. Maltbie, of the Public Service Commission, made a public statement about a week later that the charges were quite true and conceded that wilful injury is being done the people by the transit companies. The City Board of Health has reason to believe that improvement will be the result of Mr. Maltbie's statements and efforts and is awaiting developments.

Phenomenal Health Work.

Evidence of the possibility of very great improvements in health conditions in the South is furnished by the record of the work of Dr. B. W. Page of Robeson County, South Carolina, the reduction of the death-rate from 18 to 12 in three years in a county, of which only 45 per cent. of the population is white.

Dr. B. W. Page believes the death-rate to be the correct index to health work. He has compiled the following statistics as an index to his work as whole-time health officer of Robeson County for three years, his work beginning March 1, 1912:

Deaths.	1911.	1912.	1913.	1914.
Tuberculosis	147	125	70	45
Diarrheal (infants)	90	75	65	4
Typhoid	33	7	9	4
Smallpox	16	8	1	0
Diphtheria	14	6	3	4
Whooping Cough	35	22	9	3
Pneumonia	130	125	85	25
Total for all diseases	907	845	730	580

More Help for the Health Officer.

In the November number of *Public Health* published by the Michigan State Board of Health, there appears an article by Dr. E. V. McComb, the Health Officer of Menominee, Michigan, in which he arraigns the physicians of Menominee in particular and all physicians in general for lack of support of the health department. He remarks that in order to perform his duties as Health Officer he must first know where the diseases are and under what conditions they exist.

Doctor McComb reports that in the past year only 16 cases of tuberculosis were reported to him. In the past two years there were but 50 reported cases out of 75 actual cases of typhoid, and 38 of these were reported very late in the disease or after recovery. Failure to report births is also noticed by Doctor McComb.

That the physician should be an instructor to his patient is emphasized in this article. The physician should instruct in such things as disinfection, prophylaxis in typhoid, care of sputum in tuberculosis patients. Direct "negative" teaching has been run across by Doctor McComb. Such things as allowing whooping cough or measles to run through a family "to have it over with" is, of course, objectionable. The desire to cut short quarantine so as to let the patient attend school or to go back to work again has also been noticed.

Doctor McComb asks for the following eight things from the physicians:

"1. A renewed interest in the work of the Health Department, making that work a part of your business;

"2. That a renewed attention be given to the reporting of all contagious, occupational, and environmental diseases;

"3. That births be reported within 10 days;

"4. To have you consider that sanitary matters are not entirely the business of someone else;

"5. To come forward with advice, suggestions, and help for the Health Department on all occasions;

"6. To treat all doubtful cases of disease as the real thing until certain of the contrary;

"7. To ask, in short, for your more complete coöperation with the Health Officer in the work of his office; and

"8. To remember that you, while practicing medicine, have an individual duty in teaching the true fundamentals of health, the prevention and care of disease, and that it is just as much your duty as it is that of the Health Officer."

Community Nurses.

That there is a real place for the public health nurse and that her sphere of useful-

ness is not limited to the city is shown by an article in the October number of the *Dietetic and Hygienic Gazette* which comments on the state-wide interest developed in Illinois in the "community nurse" idea. The originator, Miss Harriet Fulmer, has recently been made the Extension Secretary of the Association for the Prevention of Tuberculosis. Her method of extension work as given by Dr. Evans in the Chicago *Tribune* is quoted by the *Gazette* and is as follows:

"The central idea of Miss Fulmer's plan is to secure community visiting nurses. Sometimes a nurse is employed to look after an entire county. Sometimes a string of towns located along an interurban line will employ a nurse.

"If the nurse looks after a county, the county supervisors are asked to pay a part of her salary. If she looks after a group of towns and villages, that portion of her salary to be paid by the governmental bodies is prorated among the towns and the councils are asked to appropriate the necessary funds.

"Town and county rural nursing service is now in operation in Richland, McLean, Livingston, and Morgan counties. In Livingston County Miss Fulmer enrolled 3,600 school children in the Livingston Open Air Crusaders. The rules for membership were:

"(a) Sleep with your window open.

"(b) Have fresh air where you work or play.

"(c) Breathe through your nose with your mouth closed.

"(d) Get the rest of your family to do the same."

It is stated that other communities in the state are falling in line and this should cause no wonder when it is remembered that the community nurse can find numberless ways of benefiting the people she has occasion to visit.

Another "Carrier."

In the *Journal of the American Medical Association* for October 31 is to be found a detailed statement of the epidemiological study of an outbreak of typhoid fever in Hanford, Cal., in which ninety-three cases of the disease were traced to infection at the hands of a single "carrier" who helped to prepare a public dinner. The following conclusions, drawn by the writer, Dr. Wilbur A. Sawyer, director of the California Hygienic Laboratory, are important and merit close perusal:

"1. The source of infection in the ninety-three cases of typhoid fever in the Hanford epidemic was a typhoid carrier who prepared food served at a public dinner.

"2. The vehicle of the infection was a large pan of Spanish spaghetti prepared by the carrier. This dish was baked after it had been infected, but this baking was shown by laboratory experiments to have incubated the bacteria instead of sterilizing the food. Certain customary methods of cooking are thus shown to be inadequate as a protection against infection.

"3. The incubation period in the majority of the cases in this epidemic of typhoid fever proved to be shorter than the time usually regarded as the minimum. The first case developed three days after infection. More cases showed their first definite symptoms six days after the infected food was eaten than on any other one day.

"4. The ways in which a carrier may transmit infection are so varied and so numerous that attempts at the control of mere channels of infection will not offer sufficient protection. Those who were suspicious of the raw salad at the dinner in Hanford and ate the freshly baked spaghetti turned from a safe dish to one which was heavily infected. The best protection against carriers will come through investigation of the source of infection in every case of typhoid fever. When carriers are discovered, they can be advised and controlled.

"5. Until there are more trained epidemiologists on a full-time basis among state and local health officials, the danger from carriers will not be noticeably diminished, and the individual will find in anti-typhoid vaccination his best protection against infection from carriers."

The Schick Test.

The Board of Health of the city of Rochester, N. Y., makes a systematic use of the

Schick Test for determining the immunity of persons to diphtheria and to every physician having a case of diphtheria the following statement is sent:

"DEAR DOCTOR:

"You have a case of Diphtheria in the family at.....Street.

"Referring to the recent bulletin of the health bureau relating to the administration of antitoxin and containing a résumé of Schick's work in testing for immunity in Diphtheria, I have to say, that we are able, through the courtesy of Drs. Park and Zingher of the N. Y. City Dept. of Health, to furnish you with material for testing the immunity of any member of this or associated families.

"The diluted toxin furnished for the test will keep only about one week, and even then it must be kept in the ice box. Therefore, when we furnish this material, you must be careful to keep it cold, and use it within a few days after you get it. Yours respectfully,

"GEORGE W. GOLER,
"*Health Officer.*"

Hookworm in Dogs.

It has long been known that hookworm is a very common disease in dogs, some authorities estimating that from 25 per cent. to 40 per cent. of all pups born in some parts of the country die as a result of the ravages of this parasite. It is rather interesting to note that two members of the Florida State Board of Health have recently apparently proved that the mysterious disease known as "Black Tongue" of dogs is caused by a hookworm infection. Since a curative treatment of this disease is known, the eradication of the infection in dogs becomes a possible means of reducing its prevalence among human beings.

No More Patent Medicines.

Patent medicines have been left completely out of the latest issue of the catalogue of one of the largest mail order houses in the country and prominent among the reasons assigned for this are the following:

"We find valueless and even dangerous medicines offered to the public through the medium of advertising that is extravagant, misleading and deceptive—advertising calculated to deceive the well into the belief that they are sick and to induce the sick to pin their faith to ineffectual means for recovery.

"That patent medicines are more than likely to be disappointing as well as dangerous is apparent when we consider the fact that the all-important as well as the most difficult thing in the treatment of disease is that of finding the real underlying cause of the trouble, and the further fact that the person least able to form a safe judgment in this matter is the patient himself.

"The person who falls a victim to the advertisement that attaches a grave meaning to every little ache or pain, when in reality nothing ails him that forgetting would not cure, is at least defrauded.

"The person who depends on an advertised nostrum to cure a serious ailment, which to be successfully treated must have only the most prompt and skillful attention, is throwing away valuable time. The most dangerous medicine, especially in the case of the lingering diseases that drugs alone can not cure, is that which, by containing a stimulant or an opiate, causes its victim to feel better for a while. Being thus encouraged in a vain hope, though all this time the lurking disease is steadily progressing, he often turns too late, if he turn at all, to rational means for recovery."

Law Enforcement.

Boards of health often find themselves without power to enforce law already existing or regulations they make. That the lack of such power does not make progress absolutely impossible is shown by the Report of the Executive Board of the Philadelphia Housing Commission for 1913 which under the head of "Law Enforcement" says:

"The Commission does not prosecute violators of housing laws. It interprets such laws to the tenants who live on properties where violations exist and urges them, if they are personally responsible, to make corrections, or, otherwise, to bring the defects to the attention of the landlords. Practically

10 per cent. of last year's complaints were corrected in this way."

Toronto Health Bulletin.

The diversity and breadth of Public Health interest in Toronto, Canada, is shown by the monthly bulletin which its Board of Health publishes. Realizing that the problem of the quantity and quality of the food supply is one of the most vital of public health interests, the *Bulletin* in a recent issue took up the question in a very practical way. It told of short weight bread production and warned citizens to weigh all their bread, told housewives how to discriminate between frozen and unfrozen potatoes when buying, discussed fruit and vegetable yields and made suggestions in regard to the use of vacant city lots.

One of the triumphs which this bulletin announces is that of the "Baby Saving Campaign" of this summer. To quote:

"The Baby Saving Campaign organized this past summer by the Department has certainly justified itself. During the three summer months, June, July and August, there were *200 less infant deaths* than in the same months last year.

"The death-rate from Infant Diarrhœa, the most deadly and at the same time the most preventable disease of infancy, has this summer been *cut in half*."

The Health of the Negro.

In a recent report the Board of Health of Cincinnati calls attention to certain vital statistical facts for the year 1913 in regard to the health of the Negro. It says:

"A glance at the report of the vital statistician for 1913 reveals facts pressing for solution. The general death-rate (white and colored) was 16.34 per 1,000 of population. The white death-rate was a fraction under 16 per 1,000, while the colored was 33.40 per 1,000, or over 100 per cent. more.

"Remembering the ratio of colored to white population it is shown that where one white child dies before birth three colored children meet the same fate; that over four times as many colored people die from tuberculosis; four and one-half times as many of them die of the "Black Plague"; over twice as many of them died of alcoholism; two and one-half times more of them die of general paralysis of the insane; over twice as many of them die of diseases of the circulatory system; over three times as many of them die of pneumonia, and almost twice as many of them die of acute and chronic Bright's disease."

PUBLIC HEALTH NOTES.

Cholera in the Philippines during 1913.

V. G. Heiser, who makes this report, states that in Manila, up to December 31, there were 210 cases, with 137 deaths, and in the provinces 639 cases, with 510 deaths. As regards measures to combat cholera, the whole campaign was directed toward the prompt disinfection of the stools and vomited matter of the sick and of the carriers. In the treatment, intravenous transfusion of salt solution was mostly depended upon. The experience in this outbreak, Heiser says, has again forcibly demonstrated the necessity for further laboratory studies regarding cholera. The reasons for the simultaneous appearance of the disease in widely separated sections, if clearly understood, might be of great assistance in combating it.

New York Medical Journal, November 28.

Malaria.

Supplement No. 18 to the Public Health Reports July 17, 1914, is entitled "Malaria: Lessons on Its Cause and Prevention." It is in the form of a catechism and is intended for use in the schools. It is admirably suited to the purpose, is concise, has excellent and simple diagrams and microphotographs and, in style, will appeal to both teachers and pupils. Copies can be obtained from the Government Printing Office at Washington, D. C.

Compulsory Vaccination.

Vaccination for smallpox has now thoroughly proved its efficiency. The fact that the various states have widely differing laws concerning vaccination make the following arguments for compulsory vaccination of more than passing interest. During thirteen years more than thirty-six million children were vaccinated in Germany. Of these 115 died within a few weeks or months although at least forty-eight did not die as a direct result of vaccination. In the Philippines 3,515,000 persons have been vaccinated without a single death.

"Germany has from 1874 had compulsory vaccination. There have since been no epidemics of smallpox in the Empire, although the disease has been frequently introduced from without, especially from Russia. In 1897 there were but 8 smallpox deaths among fifty-four million German people. Since 1897 long periods have passed without a single variola death. Since 1874, in the huge German army, where discipline is inexorable there have been only two deaths from smallpox, one of these of a reservist who had not been successfully vaccinated. Compulsory vaccination has averaged 1 to 3.5 smallpox deaths per million. Belgium, Russia, Austria, Italy, Spain, without compulsory vaccination, have averaged respectively 164, 231, 510, 536 and 963 smallpox deaths per million of population."

Bovine and Human Tuberculosis.

The December issue of the *Journal of State Medicine*, London, is devoted almost completely to the consideration of the relationship between bovine and human tuberculosis and expresses rather fully the work done along this line through the activity of the Royal Institute of Public Health. A paper by G. Sims Woodhead summarizes the past and present attitude of the organization toward bovine and human tuberculosis, mentioning some of the things which led to the belief in the susceptibility of man to the attack of the tubercle bacillus of the cow. Such as: The discovery of a large amount of intestinal tuberculosis in children which was apparently due to drinking the raw milk of tuberculous cattle; the appearance of a large number of blood cells in milk which may assist in introducing the bacteria; and, in more recent days, the study of bacilli from tuberculous patients by cultural methods and by animal inoculation experiments. Much of this recent work, which has been done by Doctors Fraser and Mitchell, receives consideration in the other papers of the *Journal*, one by H. J. Stiles and one by Prof. Sheridan Delepine.

As the result of bacterial examination of the milk derived from operations Dr. Stiles states that 75 per cent. of the surgical tuberculosis of Scotland is due to infected milk and that 90 per cent. of the cases of tuberculosis of the small glands of the neck and head are due to infection by bovine bacilli which have gained access through the tonsils.

Delepine has collected many statistics showing the prevalence of tuberculosis of the bovine type. We quote from his conclusions:

"The information supplied by the various methods indicates:

"(1) That an exceedingly small number of children are tuberculous at birth.

"(2) That soon after birth they begin to contract the disease.

"(3) That the nature of the tuberculous lesions and their distribution show that before the fifteenth year the alimentary passages are important channels of infection, and that after the fifteenth year infection generally takes place through the air passages.

"(4) That, when the matter has been investigated, it has been found that among children suffering from tuberculosis other than pulmonary tuberculosis a great number have been fed on unsterilized cows' milk.

"(5) That from the lesions of children fed on unsterilized cows' milk, bacilli resembling those associated with bovine lesions are found in the great majority of cases.

"(6) That both the distribution of the lesions and the characters of the bacilli seem to indicate that not less than 20 to 25 per cent. of the cases of infantile tuberculosis are attributable to infection through cows' milk, and that some results indicate a much higher proportion.

"(7) That experimental evidence shows that the ingestion of tuberculous cows' milk is followed by infection through the alimentary canal in the great majority of mammals on which the experiment has been made."

The Friedmann Treatment for Tuberculosis.

In March, 1913, a board of officers of the Public Health Service was appointed to investigate the Friedmann treatment for tuberculosis. This board consisted of Surgeon John F. Anderson, Director of the Hygienic Laboratory, and Surgeon A. M. Stimson. The general conclusions of the board, which were published in *Public Health Reports* for November 6, 1914, are as follows:

The claims made by Doctor Friedmann for his method of treating tuberculous infections are, in brief, that, by means of injections of a living acidfast organism, harmless of itself, he is able to cure cases of tuberculosis, pulmonary or otherwise, which have not already advanced to that hopeless stage where death is imminent. From the manner of presenting these claims and from the fact that successes only and not failures are reported, the reader is bound to assume that such results are the rule; in other words, that a sovereign remedy for tuberculosis has at length been discovered, and incidentally that a method has been devised for the administration of living acidfast organisms, a method which avoids abscess formation, a complication which has hitherto limited their employment.

The results of the investigation here reported do not confirm the claims made by Doctor Friedmann. We find, in brief, that the preparation used by him is not strictly devoid of dangerous properties of itself, still less so when injected into tuberculous subjects; that the favorable influencing of tuberculous processes by his methods is certainly not the rule, and that if we are to ascribe to the Friedmann treatment the improvement noted in a few cases, we are equally bound to impute to it the serious retrogressions.

We find that the organism used by Doctor Friedmann differs in important cultural characteristics from any heretofore recognized tubercle bacillus. The subcutaneous and intramuscular inoculation of animals with the Friedmann organism causes the formation of abscess in over 25 per cent. of the animals treated. The treatment of animals with the Friedmann organism—rabbits and guinea pigs—either before or subsequent to infection with virulent tubercle bacilli, is followed, as a rule, by an increased susceptibility to the disease. Inoculation of monkeys with the Friedmann culture did

not show either curative or protective action in those animals against tuberculosis.

Summary.

The claim of Dr. F. F. Friedmann to have originated a specific cure for tuberculosis is not substantiated by our investigation.

The claim of Dr. F. F. Friedmann that the inoculation of persons and animals with his organism is without harmful possibilities is disproved.

New York Medical Journal.

American Tetanus Antitoxin Going Abroad.

Tetanus antitoxin is being administered to wounded soldiers in Europe to prevent the occurrence of lock jaw to such an extent that all American firms which produce this product have received large orders from the warring nations. Its general use throughout this country makes this condition interesting because of the possibility of a famine in this commodity here as well as because of its successful use abroad.

Clinical Medicine, December, 1914.

Septic Sore Throat.

Dr. John O. Roe has an article in the *New York Medical Journal* of November 28, dealing with severe inflammations of the throat. He states that an examination of a number of cases, even those in the reported milk-borne epidemics, shows that the disease is due to a mixed infection although to be sure the streptococci usually greatly predominate. Hence one cannot with certainty select a particular organism as to the cause of the disease. Furthermore, organisms of the same types are present in small numbers in the normal throat and the infections, serious in themselves and often followed by pericarditis, nephritis, pneumonia, pleurisy, or peritonitis, are often due to a weakening of the vitality of the person affected more than to any other cause; and the virulence of the disease depends more upon the condition of the patient than the character of the germ, although the introduction of a wandering germ of a new strain among the old saprophytas may seriously aggravate conditions. Thus, while milk streptococci may be capable of inducing such epidemics when these unknown external conditions render the throat right for it, it behooves us to look for the other causes in many cases as the primal cause of the epidemic.

Bacteriological Standard for Water on Transportation Lines.

A bacteriological standard has been approved by the Surgeon-General of the U. S. P. H. Service which shall govern the water supplied to passengers by the railroads and other common carriers doing interstate business. The total number of bacteria developing on standard agar plates at 37° C. in twenty-four hours must be less than 100. And not more than one out of five 10 cc. samples shall show the presence of organisms of the B. coli type.

Foot and Mouth Disease.

Clinical Medicine, December, 1914, gives some interesting though more or less familiar facts concerning the above-mentioned ailment. This is primarily an animal disease being mostly observed among cattle, less frequently in sheep, swine and horses or the carnivorous animals. It is transmissible to man and is spread by contact as well as by the saliva, milk, and excreta of the infected animals. It is caused by a filterable virus. At room temperature in daylight the organism loses its virulence within twenty-four hours; and heating to 70° C. destroys the virus within ten minutes. Under favorable conditions the virus has been kept for three or four months.

The symptoms of foot and mouth disease appear in from two to seven days after exposure. The temperature rises from two to six degrees; vesicles form in the mouth, on the feet and on the udders. These vary in size from that of a pea to that of a silver dollar. They soon burst, discharging a watery fluid and leaving behind a raw sensitive area. There is usually a discharge of frothy saliva and animals are unable to eat coarse food. Indeed they frequently hold their mouths open on account of the pain. Besides the unknown virus the fluid of

the vesicles may contain other organisms (staphylococci and streptococci) which may modify the course and systems of the disease. One attack of the disease confers immunity and a vaccination is sometimes practised. Human infection may be brought about through the sources indicated but it is very infrequent.

The Infant and the Anti-Tuberculosis Program.

"Recent years have taught us that most of the cases of tuberculosis are contracted in early childhood; infection occurs frequently in infancy and the younger the child the graver the prognosis of the disease. Are we making use of this knowledge? Many infants are to be found under the care of tuberculous parents. Can this condition be avoided? What is the remedy? The establishment of preventoriums for infants seems the only available remedy and since these may be for the present, at least, simply wards in already existing institutions, the question of our duty along this line in the more urgent cases is pertinent."

Dr. Alfred S. Hess in the *Journal of the American Medical Association*, December 19, 1914.

Exhibits of Philippine Health Progress at the Panama-Pacific International Exposition.

The eyes of those who have been accustomed to regard the tropics and disease as synonymous terms will be effectively opened when they behold the remarkable exhibit of the Philippine Bureau of Health at the Panama-Pacific International Exposition in San Francisco. This unprecedented medical and hygiene exhibit has been prepared under the direction of Dr. Snodgrass of Manila and was shipped from that port to San Francisco on December 15 for installation in the Palace of Education and Social Economy. It consists of models of Philippine hospitals and clinics, instructive photographs, transparencies, charts, pathological specimens and specially prepared literature of interest to medical men and laymen alike.

Of all the improvements that have been achieved by the American administration of the Philippine Islands, none has been more remarkable than those affected by the Bureau of Health, particularly in extending modern sanitation to the remote "barrios," or hamlets, whose inhabitants, owing to their being so far removed from the best educational facilities of the islands, constitute the most ignorant portion of the native population. Naturally the Bureau of Health has been laboring against strong odds in spreading the gospel of modern sanitation and hygiene among this class of people, but the very determined attitude of the bureau has secured for it the crown of success.

Among the most striking and interesting of the models in the exhibit to be shown at the San Francisco Exposition are those representing "barrio" sanitation as developed by the bureau in its study of local conditions. A miniature Philippine "barrio," with the houses arranged on definite lines and provided with proper drainage canals, with streets illustrating an approved type of construction and drainage, and with hydrants and sanitary garbage facilities, will occupy a central position in the exhibit.

Provincial hospital construction will be represented by a model of the splendid new Southern Islands Hospital in the city of Cebu, which is ideal for tropical purposes in its type of construction, ventilation, arrangement of the rooms and wards, and sanitary provisions. This building is recognized as representing one of the most modern types of hospital construction.

A model of the combined laundry, bath and toilet, such as is in use at the Tondo Market, Manila, will also be exhibited, and a topographical model of the Mariveles quarantine stations, Manila Bay, represents one of the most modern institutions of its kind in the world.

Models of the sanitary water coolers introduced in the islands by the Bureau of Health, designed to keep the water from coming in direct contact with the ice, will be shown, as will also samples of the simple remedies packages supplied by the bureau of the municipalities of the islands.

A chart will be utilized to show the vitality of the cholera vibrio in different kinds of

water. This chart demonstrates that ordinary sea water, which many people believe to be destructive to bacterial life, will harbor the cholera germ for a period of at least 106 days.

Other features of the exhibit will be: Charts illustrating the declining death-rate of Manila; the progress made in supplying provincial towns with notable artesian well water; the incidence of bubonic plague in the islands; the organization and activities of the Bureau of Health; the marked decrease in the incidence of smallpox following the eighteen odd million vaccinations performed during the past sixteen years, and a number of other charts along similar lines.

The exhibits as a whole will depict in a graphic and concise manner the very gratifying results obtained along sanitary lines in the Philippine Islands, and the methods employed to secure each result.

Hygiene Among the Negro Population.

The nature and work of the Negro Organization Society is commented upon at some length by Booker T. Washington in *The Southern Workman*. This society is endeavoring to bring about better social and industrial conditions by instruction and coöperation along sanitary, hygienic, sociological and moral lines.

Special attention is paid to matters of health, cleanliness and sanitary conditions, and here the organization is valuable to the white race as well as the black race. The positions of so many negroes in the servant class make improvement in matters of health a very important consideration.

From the industrial point of view we find the average length of life for the negro working man is 35 years. In Massachusetts the average is 45 years and in Sweden it is 50 years. In the state of Virginia, 41,000 black people are sick all the time, which means a yearly loss to the people of the state, in the way of earning power, of $23,000,000.

The average negro loses 18 working days in the year because of sickness and the author believes that over $100,000,000 could be saved to industry each year by the prevention of unnecessary disease. That progress is being made is shown by that reduction in death-rate among the negro population from 30 to 24 per thousand in the last 15 years.

Deaths from Measles.

Exposing children to the so-called "harmless" diseases is nothing short of criminal procedure. One of these contagious diseases that the public is prone to call harmless is measles. The following from the *American Magazine* emphasizes the main points:

"The mortality from measles is so great that the medical profession should take immediate steps to disabuse the minds of mothers that the disease is so trivial that no pains need be taken to prevent their own children contracting it or giving it to others. The last census report shows that in the registration area it caused 7/10 of 1 per cent. of all deaths, or about ten per 100,000 of population. More recent estimates place the deaths at 1 per cent. of the total mortality from all causes, but if we include the cases reported as bronchitis, pneumonia or tuberculosis, it is safe to say that it causes much more than 1 per cent. and that the total yearly deaths in the country are 12,000 or more, mostly young children. The census report says: 'Undoubtedly sufficient attention is not given by the health authorities and by the public to the restriction of this disease.' We heartily concur in this opinion. Experience shows that the public needs instruction and that it complies with reasonable restrictions as soon as it learns the necessity. Laymen are not fools and will not intentionally kill their own offspring, nor will they deliberately murder other children. The deaths are more numerous in cities. The disease is now quarantinable in New York state and the restrictions upon school attendance should be much more rigid than the law requires. People must also be told that it is infectious even before the stage of eruption and perhaps as long as there are nasal discharges."

INDUSTRIAL HYGIENE AND SANITATION.

Child Labor.

The recent report of the Chief of the Children's Bureau to the Secretary of Labor contains promises of some interesting information in regard to child labor. A complete summary of child labor laws of all the states, including 1914 statutes, will be published in 1915.

The administration of child labor laws in the various states has been studied at length. Reports on three states—Connecticut, Massachusetts and Maryland, are practically completed and will be out soon.

Workmen's Compensation Act.

A Government Report of September 17 gives statistics concerning the working of the Workmen's Compensation Act of May 30, 1908, during the last five years. Under this act compensation is made on the basis of the workman's wages and only when the disability is in excess of 15 days. In fatal cases the compensation equals the workman's wages for one year. The following is a summary of the cases reported:

The number of accidents reported in all departments during the first year (11 months) was 4,887, for the second year, 6,989, rising to 9,381 in the third year, to 10,157 (computed) in the fourth, and to 10,876 in the fifth, making a total of 42,290 for the five years. Of the total number of accidents, 1,006 were reported as fatal, the numbers for the five years being 233, 231, 207, 218, and 117, respectively. Approximately 10 per cent. of these fatalities were in occupations not subject to compensation under this or any other law. The number of claims increased from 1,818 for the first year to 3,526 for the fifth, the total for the period covered by the report being 14,963. Of this total, 14,046 were allowed, 911 were disallowed, and 6 were not acted upon. The total paid out as compensation amounted to $1,803,923.27. The payments for the first year (11 months) were approximately $243,000, for the second year $337,000, for the third year $411,000, for the fourth $435,000, and for the fifth $378,000.

Industrial Accidents.

At the third annual conference of the National Safety Council held in Chicago in October, Mr. G. L. Avery of Peoria, Ill., declared great faith in systematic and rigid physical examination of employees. He said:

"Every man in our plant of 1,000 hands has been thus examined inside of two months, two doctors and two assistants doing the work. Prior to taking up safeguards, which were the last factor to demand attention, we had been busy for over 18 months with education and coöperation. The result of all this has been that during 1913, 94.90 per cent. of all our injuries resulted in no lost time; while for the first six months of 1914, this percentage has risen to 98.35 per cent. We have secured good results from the use of our 'unsafe tags,' which are attached to any faulty machine or appliance to show that it is out of order and must not be used, under penalty of discharge, until repaired. Our eye bulletins, prepared in coöperation with our foremen, have secured fine results for us."

The Relation of the Railway Surgeon to Safety.

T. H. Carrow, Safety Inspector of the Pennsylvania Railroad Company, in an article read before the Pennsylvania Railroad Surgeons' Association, says in part: "During 1913 there were over 21,000 injuries, of which 268 resulted fatally, necessitating a disbursement by the Relief Department of $2,000,000. These figures clearly indicate why railway management is deeply concerned in the preservation of the health and the life and limb of the vast number of employees entrusted to its care.

Since 1910 every division has had a Safety Committee, composed of five men from the ranks, actively engaged in Safety Work.

The result is, that the thirty-five committees have made over 20,000 recommendations for safeguarding the working conditions, including improvements in sanitation and welfare work.

Each accident that occurs is carefully studied, as to cause and elimination of further danger.

Medical examination is thoroughly carried out and no man is permitted to enter the service of the company without passing a satisfactory physical examination.

The company has been richly rewarded for the thoroughness of its work, for statistics show that the death-rate has fallen from 14.6 per 1,000 in 1890 to 8.86 per 1,000 in 1913.

Resuscitation from Mine Gases.

A committee appointed by the Council of Health of the American Medical Association has recently submitted it sreport, "Resuscitation from Mine Gases":

"Summing up its experience and findings, the committee recommends artificial respiration in all cases of gas poisoning and, as mechanical devices are seldom at hand, manual methods are recommended for first aid. Of these the prone pressure method is recommended unless the patient is suffering from some local wound which makes this impossible, in which case the Sylvester method may be substituted. In all cases of carbon monoxid poisoning, oxygen should be given instead of air. If the victim is still breathing spontaneously, oxygen may be given by fastening to the face a mask provided with outlet valve, and an inlet valve, connected with a bag provided with oxygen from a cylinder. The Meltzer apparatus is recommended as the best of the mechanical devices available."

Journal American Medical Association, September 26.

Industrial Poisons.

The Massachusetts General Hospital has recently prepared a chart, which gives the effect of over fifty different industrial poisons on the following parts of the human mechanism:

1. Respiratory.
2. Gastro-intestinal.
3. Cardio-vascular.
4. Nervous.
5. Genito-urinary.
6. Muscular.
7. Skin and mucous membranes.
8. Eye and ear.
9. General.

The Hospital has also issued a list of directions for printers.

The Consideration of Color, Design and Acoustics in Factories.

The American Museum of Safety recently sent the following list of questions to two hundred factories in various parts of the country:

Have you considered the following factors as they affect the nervous energy of operators?

1. The color of walls and ceilings.
2. Noise of machines.
3. Proper lighting.
4. Cheerful and convenient lunchrooms.
5. Good architectural features and their influence on the mind.
6. The cultivation of grass, trees and flowers on factory premises.
7. The location of buildings with respect to surroundings, sunlight, prevailing breezes and recreation.
8. Do you agree that the efficiency of operators is increased when the above factors are considered in factory planning?
9. Was your factory designed by an architect or an engineer?

From those factory managers who have read the signs of the times and are keeping abreast of them, encouraging reports have been received.

The question of lighting, in a great majority of cases, is being handled by experts, who are laying stress not only on quantity, but on the effect which the lighting system will have on the eyes and nerves of the operators.

One large manufacturing firm has conducted some research work on the question of color, which is known to bear a direct relation to fatigue resistance. It was found that a warm gray was the best color.

Of those who replied, 75 per cent. are most

emphatic in agreeing that the efficiency of operators is increased when the factors 1-7 are considered in factory planning.

The fifth point seems to have received little attention, but managers should not forget that a factory may meet all conditions imposed upon it and yet be a splendid example of the best in factory architecture, making those who are fortunate enough to be employed within its walls, happier and better workpeople, because of the quiet dignity, fitness, color and texture whose expression and use do not hamper operations.

"Safety First."

The Boston Elevated Railway Company reports, in the October *Bulletin of the American Museum of Safety*, that as a result of the "Safety First Campaign" conducted by the company in July, in coöperation with the Boston Chamber of Commerce, that there has been a marked reduction of accidents in connection with the collisions of cars and vehicles; also injuries to persons in alighting and boarding moving cars.

It is interesting in this connection to note the fact that the company has issued a notice to its employees engaged in transportation service, in regard to the use of alcoholic liquors. This notice reads as follows:

"1. All uniformed employees are hereby cautioned, that the habitual use of liquor, the resort of barrooms, or the use of intoxicants in any manner to such an extent as to affect their efficiency for the service is strictly forbidden by the rules.

"2. All men engaged in car and train service must be free from the liquor habit.

"3. Employees who report for duty under the influence of liquor or are found in that condition on duty will not be retained in the service.

"4. All officials and employees are expected to govern themselves accordingly."

Safety Rules.

The *Bulletin of the American Museum of Safety*, for October, prints the following Rules for Safety and Sanitation, which are in vogue at the Inland Steel Company's plants:

"1. Get the safety habit. Don't take chances. Learn all the rules. Understand your work thoroughly. Study the dangers incident thereto and avoid them. Think before you act.

"2. Do not work with defective chains, cables, tools or appliances of any kind, or in an unsafe place. Carefully examine same and report dangerous conditions to your foreman.

"3. Never work on a crane, table or other machinery, until you have notified the operator, and attached a sign, 'Danger, Do Not Move,' bearing your name, at the point where the power is turned on. No man except the man who placed it should ever remove such sign.

"4. Do not turn on any electricity, gas, steam, air or water, or set in motion any machinery, or throw down any material, without first seeing if anyone is in a position to be injured, and all safety guards are in their proper place.

"5. Do not go onto an overhead crane runway, for any purpose, without permission from your foreman, and then not until the cranemen have been notified and a sign, 'Danger, Men on Crane Track,' hung in cage before cranemen. After notifying craneman attach bumping block to crane rail between where you are working and cranes. Use same precautions when working near crane tracks.

"6. Wear goggles when working around circular saws, chipping, handling acid, cutting cables, and working at emery wheels.

"7. Do not ride on, or operate, engines, cars, cranes, elevators, or other moving bodies, or tamper with electrical apparatus, unless authorized to do so. Never leave your regular place of work except when required by your duties.

"8. If you make an opening, or remove the cover from any opening, in floor, ground, valve pit or sewer, guard that opening so no one can fall into it.

"9. Do not pile any material so high it is liable to fall, or cause another pile to fall, or allow it to lean against walls too weak to bear the pressure.

"10. Commit no nuisance; be clean and help to keep the plant clean. Conduct your private life so that you are at all times in the very best physical condition, wide awake and active.